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THE FILARIA OF THE HÆMORRHAGIC NODULES OBSERVED ON THE BODY OF THE HORSE AND ASS. — DISCOVERY OF THE MALE FILARIA.

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IT is now a long time since there was first observed on the horse small hæmorrhages from various parts of the cutaneous surface; and it has even been asserted that, from early antiquity, the Chinese knew of a breed of horses, the "Khodang," which perspired blood.

Of the authorities who have occupied themselves in studying this affection, some, as Sibald, affirm that it is common among the white horses in Tartary; while others, as Spinola, consider it as special to the horses of the Steppes. Leblanc has witnessed it in Russian horses, but it has only become well known in France since the Government commenced to purchase remounts in Hungary. It would therefore appear to be special to horses of Eastern origin, although Bernard and Liautard have stated that they saw it in Algeria among horses and mules arriving from Spain.

The symptoms of these cutaneous hæmorrhages are to-day classical, and may be summed up in a few words. The eruption of nodules is usually localised on the sides of the withers, shoulders, body, and dorsal region. It appears in the spring-time, sometimes persists throughout the greater part of the summer and autumn, and completely disappears in the winter, but manifests itself again the following year. In France the affection ceases of itself, and definitively, in about three or four years.

There appear simultaneously several hemispherical elevations the size or a pea or hazel-nut ; they are painless, and slightly œdematous at their periphery. An hour or two after the formation of these nodules their summit opens, and there ensues a more or less abundant flow of blood that trickles down the hairs and coagulates. Then the tumefaction diminishes and the nodule disappears ; though, in some instances, suppuration occurs. Often in twenty-four or more hours another nodule appears, which developes a short distance from the first.

The origin of the hæmorrhages remained a mystery, and gave rise to the most varied suppositions until 1877, when the military veterinary surgeon Drouilly announced that they were caused by a filaria five to seven centimetres long, which he believed to belong to the *Filaria papillosa* species. Not long after this date the discovery was confirmed by Trasbot, and in the following year Condamine and Drouilly published the results of a special study they had made of this worm, which they recognised as representing a new species to which they gave the name of *Filaria multipapillosa*, a designation we have altered, because the same appellation had been applied by Molin in 1857, to a filaria found in the abdominal cavity of several saurians. We named it *Filaria hæmorrhagica* Railliet, in 1885.

But the authorities just cited, as well as those who have followed them, had only seen the female of this filaria, making its way through the connective tissue to penetrate the skin ; and there remained a doubt as to the real habitat of the parasite, Davaine being disposed to believe that it must live in the blood vessels.

But now not only are we in a position to indicate its habitat, but we can, at the same time, make known the male of this filaria. A month ago we had occasion to observe an ass which was attacked by this hæmorrhagic filariosis. This animal, five years old, and in good condition, belonged to a person in Versailles, who had purchased it a short time previously from gipsies. It had an eruption on the withers, flanks, back, and sides of the neck.

As we had never seen this affection in the ass, and as there is no mention made of this animal in the special works on parasites, we told the owner that we were desirous of being informed when the animal died, if then in his possession.

On June 4th it suddenly dropped, being attacked with incomplete paralysis, more particularly affecting the hinder part of the body, though sensation and movement were not

altogether impaired; the animal was unable to rise, notwithstanding the active treatment resorted to by one of our colleagues, and the owner gave it up. We had it transported to Alfort, where it was taken care of for some days; but as it was profoundly anæmic, took no food, and was so covered with bed sores that there was risk of purulent infection, it was killed on June 14th by effusion of blood.

At the autopsy, which was made immediately after death, a certain number of filariæ were discovered not only at points corresponding to the hæmorrhagic nodules, but also at parts more or less distant from these. The normal habitat of these worms is no doubt the subcutaneous connective tissue, but it is possible to find them deeper among the other tissues; so it happens that we have met with them in the substance of the superficial pectoral muscle, as well as on the surface of the great oblique of the abdomen, beneath the panniculus carnosus. We were unable to discover any in the heart, arteries or veins, lymphatic glands, &c. But we encountered in the spinal cord, at the dorso-lumbar region, and as far forward as the middle of the cervical region, filiform, inflamed sinuous lines, marked on their transverse sections by one or two reddish openings surrounded by a light diffused zone, and occupying very varied points of the white substance. According to their aspect and their dimensions, these tracts, which were examined by M. Féré, could only be ascribed to the passage of the filiform worms. We have not, however, up to the present, discovered them there, either because they abandoned the spinal cord at a given moment, or they occupied a portion of the dorso-cervical region which escaped our notice when we made the autopsy. The markings did not extend beyond the medulla oblongata, and no trace whatever of them was noticed in the brain. In any case it is almost certain they were produced by erratic filariæ, to which the incomplete paralysis of the animal ought to be ascribed.

With regard to the superficial parasites, they were lodged between the fasciculi of connective tissue, from which it was often difficult to disengage them without tearing them; nevertheless, we managed to obtain some entire specimens.

An examination of the worms thus collected proved to our satisfaction that several among them were males, one of which was quite complete. At any rate, as is the rule with the majority of nematode worms, the number of males was manifestly inferior to that of the females, the proportion being three to seven.

This observation enables us to furnish an almost complete

diagnosis of this hæmorrhagic filaria. Its body was white, cylindrical, slightly tapering at both ends, but more so behind than before. The cephalic extremity was conical and very retractile, frequently exhibiting during life several successive stages; when it was in a state of extension it formed a simple cone, at the summit of which was the mouth, this having the appearance of a small, unarmed opening. The cuticle was garnished with extremely delicate and close stripes, and at the base of the cephalic cone they were wider apart and less regular, the spaces between them becoming prominent, some of them being elongated transversely, others shorter and elliptical or circular; altogether they represented very numerous papilliform projections. The mouth was succeeded by a short, narrow œsophagus which was surrounded towards its posterior third by a nervous ring; this œsophagus was almost cylindrical, and opened into a wide intestine which passed in a straight line to the end of the body, at a short distance from the caudal extremity becoming contracted and terminating in a short rectum. The anus was on the ventral surface.

The male was 28 millimetres long, and in the middle from ·260 mm. to ·280 mm. broad. Immediately behind the cephalic cone it presented its maximum diameter, which it maintained for two-thirds of its length; it then became gradually attenuated until it was no more than from 75 μ to 80 μ at the cloacal opening. The posterior extremity was largely rounded. It had a single slightly sinuous testicular tube which terminated behind by a deferent canal that opened, in common with the rectum, into a vast cloaca, the centre of which was about 69 μ from the caudal extremity. From this orifice projected together two spiculæ which were very different in appearance and dimensions; one of them was thin and elongated, and had a fine point; it measured 680 μ to 750 μ long, was 12 μ broad at the base and 8 μ about the middle of its length; the other was thick and short, round at the end, 130 μ to 140 μ long, 17 μ broad at the base, and 14 μ a short distance from the summit. In addition, the caudal extremity was provided with papillæ which appeared to us to show the following peculiarities: at first, on each side and behind the cloaca, were three small simple papillæ near the middle line, then others more lateral, more developed, and winged or vesicular. The latter were, from before to behind—on the left No. 1 isolated, 2 and 3 united, 4 isolated, these four papillæ forming one group, the cloaca opening at No. 2; a little more in front 5 and 6 approached the middle line; 7 lateral, and 8 lateral and relatively small. On the

right, 1, 2, and 3 joined, 4 isolated; 5, 6, 7, and 8 as on the left side; a very small one at some distance from the preceding.

The female is from 40 to 56 millimetres long. and at the middle from ·420 to ·440 m.m. broad; it is almost equally tapering at both ends. The caudal extremity is more rounded than that of the male. There are two ovaries which are doubled round the intestines two or three times, and become dilated into two oviducts and a uterus, which unite into a common canal that passes forwards, then becomes contracted to form a vagina ending in the vulva—a salient orifice near the mouth, on the cephalic cone. The genital tubes contained eggs in all stages of evolution, and in the uterus were eggs with a very thin, elastic shell, each containing an embryo bent round in a circle, or more rarely in a figure of 8 fashion. These ova measured from 52 μ to 52 μ long, and 24 μ to 33 μ broad; their shell had a variable aspect, according to the movements of the embryo. Fecundation occurred apparently *sur place*, that is, in the connective tissue.

When the females were kept in serum, they continued to live, even when they were in pieces, for two and three days; and even at the end of that time, at an ordinary temperature their movements were still manifest. It was also noticed that some of the embryonal ova in the uterine tubes were hatched, the free embryos moving about in them. These embryos were 220 μ to 230 μ long, and at most from 9 μ to 11 μ broad; they had a somewhat thick, blunt head, succeeded by a thinner portion; the body gradually enlarged until it attained its maximum diameter, about the middle of its length; then it became attenuated posteriorly, and terminated in a slight bend that had a blunt caudal point.

We several times met with these embryos among the fragments of connective tissue detached, along with the bodies of the females; but it was impossible to decide whether they had been set at liberty by a natural ovulation, or by rupture of the worm's tissues.

When the embryonal eggs were extracted from the uterus and placed in water, they did not become hatched, and soon underwent a change; showing they could only be properly hatched in the body of the female, although embryonal ova were found in the common uterus, and even in the vagina.

It was interesting to ascertain the degree of desiccation the embryos could withstand, and we tried this for fifteen minutes, but after that time none of them resumed their activity; it was the same even at the end of a minute.

It may be concluded from this that these embryos must pass directly into a moist medium, but they cannot live long in it, for they soon decay in water.

With regard to the evolution of the filaria, we cannot get beyond hypothesis, but the mode adopted of investigating this begins to solve the problem. Although, like Condamine and Drouilly, we have never found ova and embryos in blood collected from the surface of the hæmorrhagic nodules, we can see no other reason for these periodic cutaneous perforations than the necessity that prompts the females to bring their progeny to the external world. In fact, we have only found females at the nodules, and these had left the subcutaneous connective tissue to perforate the integument in places in the course of a few days. On the other hand, the situation of a vulva in the vicinity of the mouth is in favour of this supposition of an external hatching. It would, therefore, be useful to again examine blood from the nodules, and especially the first drops discharged from them, though this is difficult to do.

Another point to be attended to in future researches is that this parasitic cutaneous hæmorrhage is a season disease. If the filaria really comes to the surface of the body to lay its eggs, it is probable that these or the embryos it expels pass into an intermediate host, like the majority of the filaridæ. But, considering the feeble resistance of the embryos to dessication, it must be admitted that this intermediate host should ingest them immediately after their expulsion, and we think that the Russian and Hungarian helminthologists ought to experiment in this direction on flies with a soft proboscis, which, during the summer, suck the fluids deposited on the surface of the skin.

To sum up, this article proves:—

1. That the hæmorrhagic filaria may develop in the ass as in the horse;
2. That it inhabits the subcutaneous connective tissue, and even the intermuscular and interfascicular connective tissue;
3. That the male, until now unknown, is met with in the same habitat as the females;
4. That the embryos are incapable of resisting the slightest desiccation;
5. That the adults seem to be able to penetrate deeply into tissues, and even reach the spinal cord.

A MICROSCOPICAL EXAMINATION OF THE SPINAL CORD AND ORGANS FROM A CASE OF MALADIE-DU-COIT.*

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Lumbar portion of the Spinal Cord (*Transverse section*).

A SECTION stained with hæmatoxylin, and examined under a power of 10 diameters, presents at first no serious lesions; but on closer inspection, between the superior and inferior columns in and on the periphery of the grey matter, in a direct line latterly from the central canal, are to be seen numerous yellowish-grey punctiform centres, also delicate granular lines running through the entire substance, but more particularly through the grey matter. Examined with a power of 150 diameters, these greyish-yellow spots are seen to be engorged neoplastic capillaries, around which and extending along their course are large numbers of small, round, nucleated cells. These accumulations of cells are more dense in the immediate vicinity of the vessels, and diminish in proportion as they are distant from the vessel. This neoplastic, vascular, and hæmorrhagic condition is apparently one of the principal lesions. In double-stained sections (hæmatoxyln and eosine) the condition above described becomes still more apparent, and sections taken as they came, in a large series made from the spinal cord, frequently showed extensive peri-vascular extravasations scattered particularly through the grey matter. In the grey matter itself, at the points above-mentioned, several quite extensive accumulations of extravasated blood could be seen.

When profusely stained, not only within the vessels, but in the extravasations and immediate vicinity, could be seen numerous small, round-ended bacilli, about half the size of the swine-plague bacillus, and approximately of the same size as the bacillus of "Wildseuche." In the vessels these germs are often collected into zooglœa, in which condition they were also found in the freshly-drawn blood from the mare and stallion at the experiment station. The blood from the above stallion and mare was collected, under aseptic conditions, into sterilised flasks, the flasks afterwards being placed in the thermostat. All necessary controls were used in these examinations. The clusters vary in size from those composed

* Tissues from a roan mare, the autopsy of which will be found in the December (1892) number of the Veterinary Journal.

of half a-dozen individuals to those numbering hundreds. They sometimes extend outwardly from the clusters in short chains. The germs are connected together by a non-colourable grey mass, which distinctly separates one germ from another. These germs also grew, but not in clusters (being individually unconnected), in the thermostat in glycerin agar; in all other media employed by us they failed. All attempts at transference of the disease by cultures were also unsuccessful. It may be well to mention that in the year 1887, during the prevalence of this disease in Illinois, I was present at an incomplete autopsy (the spinal cord not being removed) at the Chicago Veterinary College, and being on my way to New York, I hastily put some small pieces of the still warm organs—particularly the ovaries, kidney, and portions of the uterus—into alcohol. On my return to the laboratory I subjected the specimens to microscopical examination for germs, and found, and still find, apparently the same organism therein, and no other.

These germs are easily coloured by the Löffler methyline-blue method, and also by carbolic acid fuchsin; but thus far we have failed to obtain any satisfactory results with the Gram method. According to the intensity of the colouring, these bacilli are either diffusely-coloured or show an unstained middle piece, making them pole-ended. Around the central canal is to be seen a dense collection of small, round, nucleated cells, which become more profusely scattered at a distance, as mentioned previously. The permanent, as well as the neoplastic capillaries, are also embraced by the same kind of nucleated cells. It is in these vessels and their immediate vicinity that the bacteria can be found in great numbers, and the frequent rupture of the delicate vessels must be related to bacterial embolism. Frequently, between extensive engorgement and distention of the vessels by red blood, will be seen quite extensive accumulations of the before-mentioned nucleated cells with scarcely a red one among them, the same marking the beginning of intra-vascular coagulation at these points. The vessels here are not so severely distended as where there is an accumulation of blood proper; but the accumulation of the nucleated cells around the walls of the vessels completely hides their outline from view. The vessels of the pia mater are also severely engorged. In the vicinity of the left superior cornu is a mass of granular deteriorated material which presents no indication of tissue structure; the same condition was found in numerous sections in the same locality. Longitudinal sections of portions of the spinal cord

(lumbar region), stained by Weigert's method, also showed the same vascular changes, with more or less degeneration and varicose distention of the axis cylinder, corresponding somewhat in character to Fig. 144 in Sims Woodhead's "Practical Pathology" (3rd edition). Cross sections of the sciatic nerve presented similar vascular changes to those already described in the spinal cord; at times full sections of the axis-cylinder are to be seen, while in some parts they are scarcely larger than a pin's point, even when magnified 250 diameters. The same varicose condition is to be seen in longitudinal sections.

Lesions in the other Organs.

Kidney.—The most marked lesion is engorgement of the blood vessels, thickening of the walls of the arterioles, extensive thickening and cell proliferation in the Malpighian tufts, with more or less perivascular accumulations of nucleated cells. The epithelium of the tubuli contorti was swollen, many of the cells having lost their outline, and no nuclei being visible. A slight extravasation of blood was to be seen within a few of the Bowman capsules surrounding the tufts. The tubuli rete were generally normal. (This description corresponds in general to the kidney lesions in the Chicago mare, although the lesions there had not progressed to the same degree, this being an acute case, while the mare in Nebraska had been sick for a long time.)

Liver.—The liver presented very marked engorgement of the vessels, particularly the capillaries; they were also surrounded by an accumulation of nucleated cells. The walls of the arteries were thickened, and there was more or less sclerosis of the connective tissue in the vascular districts between the acini. The liver cells were swollen, and their nuclei absent in many cases.

Ovary.—Of the ovary little can be said, except that its tissues were in a dense, sclerotic condition; the small vessels were markedly absent, and the walls of the large vessels were dense and thick.

There was nothing particular to be seen in the other organs except vascular engorgement.

FOREIGN MATTERS IN THE FACIAL SINUSES OF THE HORSE.

NOTWITHSTANDING the experiments reported to have been made as proving the impossibility of foreign matters reaching the sinuses from the nose, the subjoined case, which was not experimental, points to a distinctly opposite conclusion.

The subject was a six-years-old Forest-Mare, in poor condition. She, with others, was being driven from one part of the marshes to another (this is done by galloping round them, cracking whips, etc.), when she was chased into a boggy swamp, and had to be pulled out. She was then turned loose, and no further notice taken of her at the time. The next morning she was found to be ill, and the day following I was asked to see her, but she died before my arrival.

There was a slight, dirty, black discharge from the nostrils, and an autopsy showed that the cause of death was Pneumonia, induced by the presence of dirty boggy water in the bronchial tubes; there was the usual gangrenous condition of the mucous membrane of the respiratory tract, but my interest in the case was centred in the nasal chambers and sinuses, and, for a more leisurely examination, the head was taken home.

The pituitary membrane was turgescent, and swollen to such a degree, that the middle meatus was almost closed. The cause of this was distension of the venous trabeculæ, or erectile tissue; this could be traced as proceeding from the lateral nasal vein. A large band of coagulated blood, of the thickness of a finger, was noticed as originating at the lateral nasal foramen, and extending down the middle of the mesethmoid prolongation; this would be exactly adapted to the space of the middle meatus in the opposite side of the nasal chamber. Other large branches extended over the posterior part of the maxillary turbinated bone, to the region of the nasalo-maxillary opening, which was of a normal size and shape, but closed, and coated with mud. The whole of the pituitary membrane was very much swollen and black. There was a good deal of black earthy deposit in the sacculæ of the turbinal appendages.

The sinuses were now opened very carefully, and, lo! the anterior maxillary sinus was literally full of thick, black, dirty water, not a mere drop or two; and the superior sinus was full to the level of the plate dividing the maxillary from the frontal sinus; the membrane of the sinuses was stained a

dirty black, and after the fluid had been emptied, the lining of the anterior maxillary sinus and the superior, round the vicinity of the nasalo-maxillary opening, was coated with black mud.

Now this did not gain an entrance in the death-struggle, because the pony lived for two days after being in the bog; but the case demonstrates clearly the unreliability of artificial experimentalism, and ought to be sufficient to convince the most sceptical that in certain abnormal circumstances, without a reasonable doubt, foreign matters do gain an access to these cavities through the nose, and should be regarded as a likely cause of many of those obscure cases of ozœna that we are at times called upon to treat, and for which we can assign no reason.

It points, further, to the unwisdom of pinning one's faith absolutely to one method of treatment only, for it would have been necessary to have trephined such a case as this to clear the sinuses, but the nasal chambers would also have needed treatment.

One other point. The deposit of mud in the anterior maxillary sinus appears to demonstrate that this cavity in the horse, as the maxillary turbinator in other animals, is a preparatory chamber or organ. In health the air probably passes from the nose into the anterior sinus first, and then proceeds to the superior or ethmoidal cavities proper.

A NEW CATTLE DISEASE.

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History.

THIS disease first made its appearance about three years ago among the animals of a stockman, but no alarm was taken, as only a few were affected, and no danger suspected to others. No word was sent to my office on this account. Being away from home on business, and in the vicinity of the malady, I was fortunate enough to see the few cases that then existed. I visited the farm and made a casual examination of the animals diseased. After obtaining all the history possible of the outbreak (not then considered as such), I concluded that these were simply individual cases, that the disease was probably of a general nervous nature, due possibly to the breeding of the animals, they having been inbred slightly. Giving this as my opinion, I neither gave nor advised treatment, but objected to the breeding, and advised

the discontinuance of such methods. These animals came frequently under my observation with the symptoms very little, if at all, augmented for about two years. Some affected would at times apparently get better and recover. Then, again, one or two more would become affected with the same symptoms. Still no serious trouble was anticipated, no deaths having occurred. The cases continued with but little change until a few months ago, when I was notified officially, and requested to visit the locality and investigate the disease. I did this, and found upon my arrival quite a number suffering. Some two or three had died, and the number of cases was increasing very rapidly.

Symptoms.

These are of gradual development. The disease, of whatever nature its operating cause may be, is manifested by purely nervous symptoms. At its incipiency, the animals quiver and tremble as though palsied; they are unable to keep the head quiet, it being in a constant shake; their eyes have a peculiar glassy look and fixity of expression. In their movements the animals simulate the gait of one affected with locomotor ataxia. This is during its first stages. As the disease progresses, the tremulous motion of the head continues, but with much exaggeration. The gait changes somewhat, the symptoms being similar to those of an animal suffering from laminitis. They increase in severity, and others appear. Then we have tetanic convulsions upon any excitement. Co-ordination becomes almost impossible, the animals falling over in a convulsion; the muscles of the whole body become tense and rigid, the limbs are entirely stiff, and should any movement be attempted the animal will topple over; the appetite is unimpaired, and usually digestion is good. However, I have, since this outbreak, heard of some that had diarrhœa. This latter symptom has not occurred in any that came under my own observation. These symptoms increase, involving all the muscles of the body, and the poor animals will pass off in one of the convulsions.

Distribution.

Not widely disseminated, yet it is not confined to one farm or locality. Since the outbreak herein described, more have occurred. Several persons in the same county have cited instances in their own herds, where a few had been, and were affected. Again, this disease exists in several neighbouring counties. The death rate, so far, being small, but little alarm

has been taken, and for this reason we have not heard of nearly as many cases of this malady as do exist.

Etiology.

Of this we are not able definitely to speak, for thus far we have been unable entirely to account for the cause. First, search was made to find if the animals that were in the neighbourhood that were attacked, were not all related to those that were first affected with this disease. This was with a view to discover if the particular breed had anything to do with it, or if any particular family were affected. This idea, viz., that of heredity, proved of no avail, for shortly animals of an entirely different breed were found to be affected. Now, two ideas, that of a peculiar manner of breeding and inherited disease, have been dispensed with. Next, the pastures were examined, and no cause found; the animals had been running on blue-grass pasture, and high rolling, well drained land, no swamps or low land being accessible. These pastures have not been ploughed for twelve or fifteen years. Failing, so far, the next step was that of supposed microbic origin, the disease lately seeming to be infectious. So far, there have been no positive results in that line of research. Having decided to try and find the real cause by means of the microscope, an animal near death was selected and destroyed.

Post-Mortem Examination.

Before speaking of the *post-mortem* appearances proper. I will call attention to the method used to throw the animal, Being very ill, locomotion was necessarily slow and irregular. He was urged along very slowly to a place where we wished to destroy him, and just at this point I walked up closer, and as I did so the excitement, which in the same ratio had decreased the speed, was increased, until finally the poor beast was unable to move and looked as though it were tied to the spot. Then by lying the hand upon the animal's back with a light tap, he would drop over as though he were knocked down, his muscles being perfectly rigid. At this stage he was unable to rise until after some minutes had elapsed. The *post-mortem* examination revealed nothing, all the internal organs appearing normal, and the different apparatuses looking perfectly healthy. This was a disappointment. The nerves, together with the spinal cord and brain, with their meninges, failed to show any change so far as gross anatomy was concerned. After the *post-mortem* inspection, portions of the nerves, the spinal cord and the

entire brain substance, together with its meninges, were preserved, and a microscopical examination was made of them.

This examination revealed atrophy of the nervous structures, and in some parts only the axis cylinder remained, appearing as a fine filament. Some experiments are still in progress, though no positive results have so far been realised.

Treatment.

Not being positive as to the nature of the malady, no direct line of treatment in the way of medicines can be advised. The treatment, however, may consist of two orders, viz., Prophylactic and Curative.

Prophylactic.—Remove healthy from diseased. Change food and water. Change all stock if upon a low land pasture to high land, and burn or bury those that succumb to the malady.

Medicinal.—Use nerve tonics and general fortifiants, such as nux vomica, gentian, ginger, Fowler's solution of arsenic, sulphate of iron, or potassium iodide. Those remedies may prove of benefit to those affected in arresting tissue metamorphosis or degeneration. Again, antiseptics may be used with benefit, and in cases where diarrhœa is present a good purgative followed by oleaginous drinks will be productive of good.

Editorial.

THE CONTROL OF CONTAGIOUS DISEASES.

A PERUSAL of our Parliamentary Intelligence will show that the contagious diseases of animals and their suppression are occupying a much larger share of public attention than was the case some years ago, and that the presence of a Minister of Agriculture in the House of Commons affords an excellent opportunity of eliciting information with regard to these affections, especially in respect to legislation, while it affords the means of criticising the action of the Agricultural Department in dealing with them. A change of Ministers does not appear to have done much in changing the system adopted in controlling such contagious diseases as are recognised by the Department. The late Minister of Agriculture, Mr. Chaplin, who was also the first in that office, did excellent service, and, perhaps, no better could have been found to fulfil all the requirements of such an onerous post; while his successor, the present Minister, is following pretty closely in his footsteps. As will be seen from his replies to questions in the House, he takes generally an intelligent view of the subject of contagious diseases, though now and again we are somewhat puzzled to understand clearly on what experience or facts he relies for the soundness of his statements. For instance, in answer to an interrogator who desired to know why the last outbreak of Foot-and-Mouth disease had not been dealt with in the usual manner, the Minister answered: "It frequently happens that the slaughter of animals affected with Foot-and-Mouth disease is attended with greater risk than the keeping of them alive under strict observation and in perfect isolation. I came to the conclusion that this would have been the case in the present instance." It would be extremely interesting and instructive to know the instances in which it has frequently happened that there was greater risk in slaughtering animals than in keeping them alive in Foot-and-Mouth disease, or any other very infectious malady. Unmitigated slaughter has been the order of the day in dealing with the malady in recent times, and the adoption of this severe and unscientific measure has been urged because of the very infectious nature of the disease, which rendered its control by any other measure an impossible attempt. The Minister must have given this answer on his own responsibility, for the statement is certainly not in harmony with the

experience of those who have had to combat either this or any similar disease. Compulsory slaughter of diseased and healthy animals has been the sheet-anchor of the Agricultural Department hitherto, and it has either been needlessly resorted to, or in the present instance a grave risk has been incurred for which there was no occasion, unless it were to demonstrate that, after all, Foot-and-Mouth disease can be controlled when only a small number of animals are affected, without killing them and all those on the same farm or estate which are not diseased. Wholesale slaughter we are entirely opposed to, and the result of this experiment plainly shows that it may be quite unnecessary. But, nevertheless, all experience testifies that there is always far less risk of spreading infection by slaughter than in keeping diseased animals alive, no matter how rigidly they may be isolated; indeed, we are inclined to assert that in the one case the risk is *nil*, and in the other it is considerable—that is, if the statement so often made is true, that rats, rabbits, hares, and even birds, not to mention human beings, dogs, &c., may convey the contagion.

THE INTERNAL CAROTID ARTERY IN THE SHEEP.

At the *Societè de Biologie* in last December, M. Beauregard drew attention to the cerebral circulation in the sheep, by remarking that ruminants are supposed to have no internal carotid artery; their cerebral arteries arise from a *rete mirabile* that lies on each side of the *Sella Turcica*, in the cavernous sinus, and which is supplied with blood by several branches arising from the internal maxillary artery, according to Chauveau's "Comparative Anatomy of the Domesticated Animals."

Beauregard insisted, however, that there is certainly an internal carotid in ruminants, but that it is only well developed during intra-uterine life. It becomes atrophied with age, ceases to communicate with the cerebral *rete mirabile*, and becomes an unimportant meningeal artery. Up to the present time this internal carotid had not been recognised, and Beauregard noted that it did not enter the cranium by the carotid canal, but by passing through the cavity of the tympanum, as in the bats.

THE TRANSMISSION OF ANTHRAX BY MEANS OF WATER.

M. Galtier, in a paper read before the Société Centrale de Médecine Vétérinaire on December 8th, 1892, stated that during the summer of 1892, three cows and a goat died from an illness, apparently anthrax, at a farm situated close to a brooklet into which ran water coming from a tanyard. A short time after this occurrence, six people who worked near to this brook were attacked with malignant pustule, and one of them died. This disease being almost unknown in the locality, its appearance was believed to be due to the water coming from the tanyard; the cattle drank in it and trod over the muddy bed where the putrid remains of immersed skins were allowed to rot. M. Galtier examined samples of the water and inoculated rabbits with them; one died from anthrax four days after; the anthrax bacillus was found in the blood and spleen and liver; guinea-pigs inoculated with a drop of

blood taken from the heart of the rabbit died in less than forty-eight hours from anthrax. Similar facts have been published by MM. Trasbot and Nocard.

DEMODECIC SCABIES IN THE OX.

In Neumann's work on the Parasites and Parasitic Diseases of the Domesticated Animals (Fleming's translation), Demodecic Scabies of the Ox is described (p. 226), and mention is made that this follicular mange was first observed in the cow by Gros in 1845, in the hides of cattle in America by Faxon in 1878, and that a case was published by Grimm in 1884. Oehl, of Mainz, has, in the *Berliner Thier. Wochenschrift* for 1892 (No. 52), given a careful description of another instance occurring in a year-old beast—a half-bred Bernois-Vogelsberger—which had been affected for about two months before Oehl was called upon to see it. The lumps or nodules that were first seen on the surface of the skin, had apparently disappeared, but they subsequently reappeared, and the disease had assumed a chronic form.

The animal, though somewhat poor in condition, did not seem to be much inconvenienced. An examination of its skin revealed the presence of the malady in all its phases. The earliest of these was marked by little prominences on which the hair stood upright, or the skin looked smooth and shining as though shaved; these places were most numerous on the sides of the neck and shoulders; on the croup, chest and flanks they were not so frequent, but upon the inner aspect of the thighs, as low as the hocks, they were present in large numbers. On the other parts of the body, and especially the head, outer surface of the thighs, forearms and the lower portions of the limbs were exempt.

There was no pruritis, and when the affected parts were rubbed, the animal manifested neither pleasure nor pain. On these parts were disseminated the nodules, which were the size of a pea to that of a hazel nut, and when they were pressed upon a yellow, creamy pus exuded from them. In some places the skin was only reddened and tumefied, and at others were hard lumps on the top of which the hairs had been shed and the epidermis was scaly, while the skin around was generally pale. Some of the nodules had opened spontaneously, and were covered either with fresh pus or a dried crust which, on being removed revealed a very red and round or, rarely, oval sore, about one-fourth of an inch in diameter. In lifting up a fold of the skin and pressing it strongly at one of these places, there escaped a small quantity of sanguinolent pus from five to seven different points, as if from small and distinct openings. In the nodules which were encrusted, cicatrisation had begun around the periphery, while the centre remained raw—their appearance altogether so much resembling that of follicular scabies in the dog, as to arouse Oehl's suspicions as to this being the same disease. These suspicions were confirmed by a microscopical examination of the contents of the pustules.

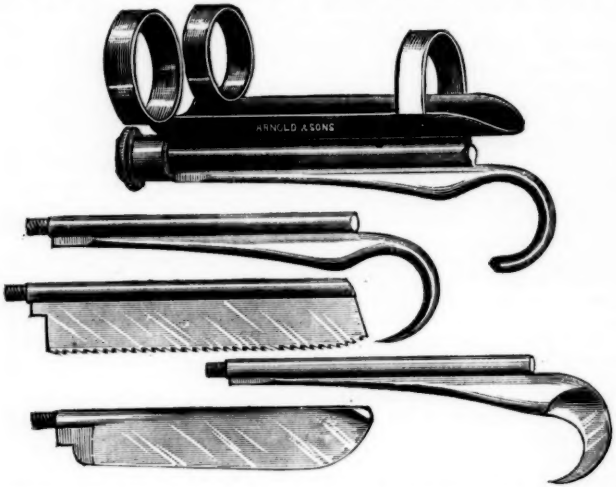
Having regard to the tendency towards spontaneous recovery, Oehl adopted a method of treatment in which creolin formed the chief factor. This soon resulted in a cure.

As in the other cases of bovine follicular scabies, the origin of the disease could not be traced, and the other cattle remained unaffected. Oehl took advantage of this opportunity to study the form of the parasite, as well as the larvæ and ova. In comparing this Demodex with that found in man and the dog, he found that the parasite in each was about the same length—that is about one-third of a millimetre, but in their breadth there was a constant difference. The breadth of the Demodex of man is one-eighth of its length, that of the dog is one-sixth, and that of the ox one-third or one-fourth. The relative breadth of the anterior to the posterior part of the Demodex of man is

as three to one, in that of the dog as 1·25 to one, in that of the bovine the same. The relative length of the anterior part in proportion to the total length of the body in the parasite of man was as one to four, in the dog as four to nine, and in the bovine as one to two. In addition to this, the thorax in the Demodex of man and the dog is twice as long as it is broad, and in the bovine species the dimensions are about equal in both directions. These characteristics allow a distinction to be made between these ectozoa.

NEW EMBRYOTOMY SET.

THE accompanying woodcut represents a new form of embryotomy instrument, manufactured by Arnold and Sons, London, the particular advantage of which is the receiver or handle which, it will be observed, is so formed that it



constitutes a rest for the second finger, and also allows a large amount of downward pressure when cutting, while the single ring prevents the finger slipping out of position. The first and third fingers are inserted through the posterior rings, and the advantage of this is found when pulling power is required, for by clenching those two fingers towards the palm of the hand it is most efficacious when the head or other part is to be raised. It also does away with the necessity for an assistant pulling upon a rope, an operation always attended with great risk either to patient or operator. A set of instruments are made to slide into this receiver, viz., blunt and sharp hooks, hooked knife, straight knife, and a saw, which will be found of unequalled use when necessary to sever the back-bone.

TUBERCULIN AND MALLEIN IN GERMANY.

SOME important communications were made to the German Veterinary Council at their session of February 18th, with regard to the diagnostic value of injection of tuberculin and mallein. Professor R. Koch had been invited to

attend the meeting, but was represented by Professor Dr. Pfuhl. Several veterinarians spoke in favour of the injections. Dr. Sticker also spoke of the frequency of experiments made, regardless of Dr. Koch's injunctions—namely that the temperature of animals is subject to variations, that of cattle being from 38 to 40 degs. Celsius. This fact should be carefully regarded, in order to test the working of tuberculin and mallein. Professor Essor, of Gottingen, moved that the German Veterinary Council declares tuberculin to be a safe diagnostic of tuberculosis in cattle. It is to be desired that experiments should be made at the cost of the State. The council also expressed a wish that veterinarians will continue to make experiments whenever possible. The resolutions were unanimously carried.

DISINFECTION OF SHOWS.

THOROUGH disinfection of showyards of all kinds is a matter of the utmost importance to exhibitors. With the increased risk of contracting infectious or contagious diseases comes the greater need for guarding against their attack. Therefore the sanitary conditions of showyards, which are stocked with so many valuable animals, cannot be too strictly attended to.

In the cases of shows held in roofed buildings the subject of disinfection demands especial observance. Not only are the animals usually huddled more closely together in covered yards, but a free current of air or the quick change of atmosphere is more difficult to obtain. Indeed it is, in many cases, found a matter of considerable difficulty to secure the needful standard of ventilation. Under these circumstances disease finds a most congenial existence. Stagnant heated air affords an excellent nursery for its spread and development. A close impure atmosphere favours the maladies in two ways. The germs of disease find a pleasant and prosperous existence in exhaled air, while the breathing of the impure atmosphere renders the animals more subject to infection. That is in the case of internal diseases. External troubles are readily spread in badly-ventilated buildings by the floating germs lodging directly on the skins of the animals.

But if a large number of animals, although they may all have been perfectly sound and healthy when stalled, are kept for any length of time in foul atmosphere, the result may have a serious effect on their after condition. The germ-loaded atmosphere, which even healthy animals create in the absence of a free current of fresh air, may considerably weaken the constitution of an animal, and not only interfere with its later usefulness, but likewise render it more liable to attack of disease if the danger should arise. We think, for many reasons, it will be clear to all owners of stock that a thorough system of disinfecting showyards or other buildings occupied by large numbers of animals should be enforced. In fact, to ensure a healthy and pleasant atmosphere, the use of some purifying substance is necessary. And as years go on and science advances, the use of disinfectants will extend. The system has already made substantial progress. It is not many years since the manufacturers of a well-known disinfectant drew attention to this previously neglected matter. When Jeyes' Sanitary Compounds Company, Limited, first made the proposal to the directors of several large farm stock, canine, and poultry shows, their efforts met with stubborn opposition. However, after persistent expounding of the claimed advantages, they succeeded in securing from the directors of a few shows the liberty to experiment. From that time till now the practice has gradually but surely gained in favour. The great showman, Barnum, lent powerful aid to the progress of the system by adopting it in his enormous shows, and expounding its advantages. By a proper use of disinfectants the risk of spreading disease may be reduced to a minimum

and the presence of disagreeable smells obviated. We would, therefore, commend the matter as worthy the attention of all having the direction of shows of live animals.—*From "Farming World Year-Book" for* 1892.

THE INTRINSIC NERVES OF THE KIDNEY.

From a physiological standpoint, the nerves of the kidney have received repeated investigations, and the results yielded have added much to our knowledge of the function of the organ. On the other hand, no information concerning the histology of the renal nerves exists in medical literature, and it was with the view of clearing away a portion of the darkness in this field by one of the newer methods of nerve-staining, the chrome-osmium-silver method of Golgi, that Dr. Berkeley undertook their study, the results of which have just been published in the Bulletin of the John Hopkins Hospital.

The immediate source of innervation of the kidneys is the renal plexuses, derived in their turn from the solar plexus and lesser splanchnics; the plexus being composed, so far as the fibres are concerned, of threads from the semi-lunar ganglia, which in their turn receive fibres from the greater and lesser splanchnics, and the right pneumogastric nerve. Therefore, it may be seen that the innervation of the kidney is directly dependent on the great sympathetic, and, histologically speaking it is found to be true that all the nerves proper to the glands belong to the non-medullated type of fibre.

The details of his investigations are given with much detail by Dr. Berkeley, and the conclusions he arrives at are given as follows:—

That the renal nerves enter with the vessels at the hilum, and that with their multifarious ramifications and ganglionic enlargements they form a not inconsiderable portion of the kidney's entire substance. From the vascular nerves—which we may call the primary ones—come secondary divisions, distributed throughout all the cortical and medullary-cortical regions in the form of a vast open network. That the glomeruli are surrounded by a wide-meshed plexus of fibres having terminal end-knobs approximated closely to the Bowman capsule, but that no finer nerves can be seen penetrating that membrane, and end-terminations within the capsule upon the convoluted vessels, either in the form of knobs, or in the finer pointed terminations cannot be discovered. That fibres pass off singly and separately from the vascular nerves, and are distributed on the convoluted tubes, not only with end-terminations in the form of the well-known globular ending, but also in fine delicate threads that penetrate the membrana propia of the tube and presumably enter the cement substance between the epithelial cells; and that the function of these divisions to the tubuli contorti is probably one concerning the urinary secretion. Lastly, that ganglionic enlargements occur widely, but that strictly speaking no nerve cells provided with nucleus, body, and protoplasmic arms, are to be found; and that all renal nerves belong to the sympathetic system.

THE TREATMENT OF ACTINOMYCOSIS BY THE IODIDE OF POTASSIUM.

Some time ago we drew attention to the discovery by Professor Thomassen, of the Utrecht Veterinary School, of the curative power of potassium iodide in actinomycosis, when the drug was administered internally; and that the value of the discovery had been proved by the experience of French veterinary surgeons, who had tested it in a number of cases of this disease. Since that announcement, the drug has been extensively employed on the Continent for the cure of actinomycosis, and with uniform success, the last instances recorded having been published in the *Revue Vétérinaire* for February last.

These were cases of actinomycosic tumours on the maxilla, and were treated with 10 grammes of the drug daily for from fifteen to thirty days, a complete cure resulting.

But it is in the United States of America that this treatment appears to have had the most extensive test applied to it, as we learn from a report upon investigations relating to the treatment of "lumpy jaw," (as the maxillary form of the disease is there termed) by Dr. Salmon, chief of the Bureau of Animal Industry. It would seem that the existence of this disorder among cattle in the States has given rise to much discussion and sensational writing, very exaggerated statements as to its contagiousness and dangerous character having been so successfully disseminated that many cattle were slaughtered and destroyed as unfit for food, because of their being infected. This was more especially the case in Illinois, and the Bureau had to take the matter in hand in the commencement of 1891, with the view of ascertaining how far the statements had any foundation. In 1892, Thomassen's discovery was published, and arrangements were then made to test the remedy on a large scale upon the affected animals as they came into the Chicago stock yards. This was accomplished with some difficulty and unpleasantness, owing to the opposition of the State Board, which rendered the interference of the Government necessary. The report contains much that is interesting in this connection, and a good deal that does not seem very creditable to the State Board or its Veterinarian; but we are now chiefly concerned with the disease and its treatment, and therefore refer to that portion prepared by Dr. Norguard, who was entrusted with the medical division of the investigation. It appears that eighty-five animals were treated, and when they were slaughtered it was found that sixty-eight, or eighty per cent. of the whole number were cured. But these were only a portion; for of the whole number under treatment which were killed and examined, viz. 185, there were found to be cured 131, or about 71 per cent., and it is asserted that if the disease were attacked in the early stages, there is no doubt that 85 or 90 per cent. would yield to this treatment. The report contains valuable evidence from a large number of cattle owners, in addition, who had successfully employed the potassium iodide. But we will allow Dr. Norguard to speak for himself by quoting a portion of what he states in his report upon the experimental treatment. He says:—

It has already been mentioned that the medicine used in treating actinomycosis is iodide of potassium. This is a common drug, and may be obtained at any drug store, the price being about $3 per pound.

All the iodine salts have a faint antiseptic power, which is produced by the iodine getting free under a prolonged influence of various organic substances. A 5 per cent solution of iodide of potassium will render tuberculous sputum inactive in about twenty-four hours.

Iodide of potassium has a strong absorbing effect when given internally, especially on all pathological accumulations of cells. In connection with protoplasm, carbonic acid, and water, the iodine will become free and combine with the cells in the pathological product, which will decrease their vital power and accelerate their absorption. It still remains to be explained in what that specific effects consists, which the iodine salts has on the actinomyces fungus. Several prominent authorities have investigated the subject, but all have given a different explanation. Nocard succeeded in cultivating actinomyces in gelatine containing 1 per cent. of iodide of potassium, but this proves nothing, as the salt in this case will remained unchanged, and in that form has not even a slight antiseptic power. It is not necessary, however, that the iodine should have a specific influence on the fungus to produce that remarkable effect, which the drug evidently exercises on all actinomycotic new formations. This effect may simply be attributed to the strong absorbing

power which iodide of potassium exercises on all pathological neoplasms and waste products. The colonies of actinomyces, when living and possessed with regenerative power, are always imbedded in a small amount of liquified tissue surrounded by a wide zone of inflammation. When an actinomycoma consists exclusively of granulomatous tissue and connective tissue, the fungus is dead, or at least dying (Bostroem).

It will therefore be understood that the liquified tissue surrounding the parasite, under the influence of the administered iodide of potassium, will be absorbed, the soft granulomatous tissue when partly deprived of the necessary pabulum by absorption will undergo a degenerative metamorphosis, and the round cells be converted into spindle cells, and the whole actinomycoma in this way will be turned into an inert mass of fibrous tissue, enclosing the dead calcified actinomyces tufts.

The yellow pus-like substance in which the living actinomyces is always imbedded is not true pus, though it has that appearance, but is merely the product of a degenerative metamorphosis (necrobiosis). True pus must contain pus corpuscles and specific pus-producing micro-organisms (pyogenic cocci and bacilli) (Bostroem).

Where iodide of potassium is administered in medium doses for any length of time, it will affect not only the diseased parts, but the liberated iodine will combine with the normal cells in the body and produce a series of symptoms called iodism. This consists of a general emaciation, shrinking of the fat, atrophy of lymph glands and of mammary glands, in connection with a chronic catarrh of nose and conjunctiva, and desquamation of the epidermis. When given in over-doses, it will produce a catarrh of the stomach and intestines, and even cause hæmorrhages. The fæces will get dry and hard, and coated with thick mucous, or eventually with blood. All these inconveniences, however, are easily avoided when the medicine is given in proper doses, care being taken that the animal gets plenty of nutritious and easily digestible food. It is not, however, advisable to administer iodide of potassium to milch cows, as it will reduce the milk secretion considerably, or stop it altogether. Furthermore, a great part of the drug is excreted through the milk, making it unfit for any use. When administered internally, the drug permeates all the tissues in the body, even the muscles and bones; but it is rapidly excreted again, especially through the urine and milk.

In treating actinomycosis in cattle with iodide of potassium, the dose should never exceed one gram (¼ dram) for every hundred pounds live weight, the proper dose being from 8 to 12 grams (2 to 3 drams), according to the size of the animal and the extent of the lesion. This dose may be given from five to six days, when the animal will show slight symptoms of iodism, viz.: discharge of thick mucus from the nose and excretion of tears. The fæces will become rather dry, but that is easily repaired by giving a dose of glauber salts and some bran mash. This will restore the appetite, and two days after the last dose was given the animal will be ready for another week's treatment, and so on until a cure is effected. If these precautions are taken no ill effect will result from the treatment, and if properly fed the animal will gain in condition, uninfluenced by the medicine. There is, however, a great difference as to the individual effect of the medicine on animals, but any farmer who takes an interest in seeing his stock doing well will easily perceive when it is time for him to stop, and give the animal rest for two or three days.

The medicine is best administered dissolved in water and given by means of a slender, long-necked bottle, for example, a common Rhine-wine bottle. One dose of medicine is dissolved in about a pint of water, the steer is seized by the nose to hold up the head, and the contents of the bottle are emptied into the mouth without fixing or securing the tongue in any way.

Where a man has several head of lumpy-jawed cattle to treat, they may not

be of the same size, and therefore not require the same dose of medicine. As the farmer or breeder is not usually in possession of a pair of scales sufficiently fine to weigh off such small doses as are required, the most convenient way is to have the medicine, which is easily dissolved, prepared in a concentrated solution of the strength 1 to 2 (2 drams of the solution to contain 1 dram of iodide of potassium). The drug must be dissolved in distilled or rain water, as otherwise a precipitate will form from the salts present in common water. With such a concentrated solution and a measuring glass, it is easy to measure out the exact dose for every animal and pour it into the wine-bottle, half-filled with common water.

Effect of Iodide of Potassium on the different Actinomycotic New Formations and their Tissues.

To give a detailed description of the various forms under which actinomycosis appears in cattle is not necessary here, as there is an abundance of literature on this subject. It shall only be mentioned that, from a therapeutic standpoint, we may divide them all into two classes: (*a*) those where the bones are involved, and (*b*) those where only the soft tissue has become affected.

Of the 150 head experimented on, about sixty had lesions where the bone was affected. These may again be divided into two classes: first, where the lesion is located on the lower jaw, which is by far the most common; and, second, those where the facial bones and upper maxilla have become affected. In both cases the lesion has been produced by an invasion of the germ, by means of a spikelet of barley or some other stiff vegetable particle, on which the germ has vegetated in nature. No other satisfactory explanation of the infection has been given so far, whether the invasion occurred through a decayed tooth or through some abrasion in the mucous membrane of the mouth, on the tongue, or in the pharynx. Bostroem has minutely examined thirty-two cases of actinomycosis in the jaw bones, and in every case he found some vegetable particle located in the socket of the decayed molar, or in the gums, or even as deep as in the centre of the swollen rarefied bone. Where the tongue is affected, these foreign bodies may be found in almost every one of the nodules, and a microscopical examination will show them to be closely covered with actinomyces. In five cases of actinomycosis in human beings, this authority has traced the infection back to the same origin, and thereupon advises people who may have that habit not to chew a piece of straw or to put grain, especially those kinds which are armed with a spikelet, in their mouths, as he feels satisfied that this is the only way in which infection can take place.

Where the lesion has only affected the soft tissues, the most common appearance is in the form of a hard, round or egg-shaped tumour, lying loose in the connective tissue under the skin, usually in the submaxillary, sublaryngeal, or parotid region. The tumour may vary in size and character, ranging from a walnut to a child's head, and from being hard and solid to soft and fluctuating. In almost all cases, bony or soft, the skin that covers the tumour or swelling is more or less indurated, and may on the large bony swellings obtain a thickness of 2 or 3 inches. These fibrous indurations, however, show a pronounced inclination to shrink where iodide of potassium has been administered for some time, and will, in most of the cases, disappear altogether, leaving the skin in its natural condition. . . . .

Of all the cattle in this experiment, not one had actinomycosis in the tongue, and the inspectors in the stock-yards have only seen it two or three times. The reason for this may be that actinomycosis in the tongue has a comparatively acute progress, and that an animal so affected rapidly loses in flesh if medical treatment is not adopted. Now we know, however, that we can always

master a case like this, even if the tongue is swollen to such a size that it protrudes from the mouth and is as hard as a board. Give 10 grams (2½ drams) of iodide of potassium a day, in the above-described way, care being taken to give the animal time to swallow the medicine, as deglutition is impaired considerably by the hard and swollen condition of the tongue. Feed the animal on gruel and other fluid food, with a bottle if necessary. In ten to twenty days the tongue will regain its natural size and condition, and the animal be enabled to eat hay.

Though none of the cattle in this experiment had the lesion in the tongue, several of them had it in the mucous membrane in the mouth, especially on the inside of the lips, but not to any great extent. It appears as small, flat tumour-formations, the size of a dime to that of a fifty-cent piece, of a reddish-grey colour, and only protruding a little over the surrounding parts. They will shrink and disappear completely in about two weeks, when medicine is administered regularly.

When a medium dose of iodide of potassium has been administered for from three days to a week, symptoms of iodism will appear, and at the lapse of two or three weeks a desquamation of the epidermis will take place, especially on the neck, shoulders, and rump. But there are many exceptions. Some animals will show only a slight catarrh of the nose and none of the conjunctiva, while the desquamation will not take place before a month or six weeks, or may not occur at all. Several of the steers experimented upon showed under the whole treatment not a single epidermic scale on their body, even when the dose of medicine was increased up to 15 grams a day. They would get a catarrh of the intestines, with constipation, but show no external symptoms of iodism. Such an insusceptibility of the constitution usually extends to the actinomycotic lesions, which would remain almost unaffected, or only improve slightly. There are, however, also exceptions here, as one steer with a large tumour in the sublaryngeal space, was almost completely cured without showing any epidermic desquamations.

Individuals which show the most pronounced symptoms of Iodism will improve the fastest.

The effect of the medicine is rarely alike in two individuals, even if they are affected exactly the same way and to the same event. The hard fibrous tumours lying loose in the connective tissue under the skin will require a treatment of from three to six weeks, with proper intervals, according to their size. But in many cases a tumour the size of a child's head will shrink and disappear faster than a similar one located on the same place in an animal of the size and condition, but with the tumour only as large as a goose egg; the former will show a pronounced iodism, while the latter will show little or none at all.

When one of those loose fibrous tumours becomes fluctuating and is left alone, it will break open after a while, and a comparatively small amount of pus will be evacuated. The pus cavity will rapidly fill up with the soft granulomatous tissue characteristic of actinomycosis, and when it is full it will grow out of the opening like a mushroom and form a granuloma, which will increase in size very fast as long as the supply of nutrition is abundant, after which the surface will begin to ulcerate.

If the treatment is commenced at this time, say with a daily dose of 10 grams of iodide of potassium, the rule is that the ulcerating surface of the granuloma will dry up, and the granuloma itself will gradually shrink, apparently as if it were drawn in through the same hole it had grown out of. Then the fibrous parts of the tumour will commence contracting until the whole tumour has disappeared, leaving a small white cicatrix where the granuloma was. But here there are also exceptions. In some cases the granuloma may remain

unaffected, while the fibrous parts begin to shrink first, and after a while the granuloma will become dry, shrinking slowly, but not disappearing completely, although the actinomyces are killed or rendered ineffective by the treatment.

When the disease affects the bony parts, the periosteum will become covered with thick layers of connective tissue inclosing centres of soft granulomatous tissue, and when it penetrates into the internal parts the bone will increase in bulk in two different ways, either by a rarefying granulating ostitis, or by an ossifying periostitis. The invading germ will cause an irritation, which will be followed by a formation of granulomatous tissue in the cancelli of the spongiosa and in the Haversian canals. The bony plates of the former and the walls of the latter will be destroyed, and replaced by large pockets or alveoli filled with soft granulomatous tissue, and with a creamy, viscid pus-like mass, containing numerous actinomyces.

The proliferating granulomatous mass will finally penetrate the surface of the bone and infiltrate the covering tissues, and at last break through the skin, which will become thick and indurated, and form a bulky fibrous wall around the fast growing granuloma. The picture here described is that frequently seen in the lower maxilla. These tumefactions may attain enormous dimensions, and even reach the size of a half-peck measure, with granulomas 6 to 8 inches in diameter. Several specimens of this kind were included in the experiment, though such extreme cases practically never will be submitted to treatment.

Nevertheless, the effect of the medicine by far exceeded the expectations. With a few exceptions, they all showed wonderful improvement. Under the effect of a 12 to 15-gram daily dose, those large fetid ulcerating granulomas would dry up and shrink, most of them disappearing altogether, only leaving a white contracted cicatrix; while the fibrous parts of the tumefaction would become thinner every day, and finally leave the swollen bone directly covered by the muscles and the skin. The *post-mortem* examination of these bony tumours revealed similar improvements. An incision through them showed the internal parts to be spongy, but the alveoli and pockets only contained very little granulomatous tissue, and this was not soft, but of a more elastic and dense character, and only contained calcified actinomyces. In many of them no pus was found at all, while others contained small quantities. This remarkable improvement was seen in all those cases in which the iodide of potassium had caused a well-pronounced iodism, while in those cases in which the medicine had a less pronounced effect, the improvement was equally small, and quantities of pus and soft tissue could be found in the alveoli. Similar to the loose-lying tumours, the medicine may in these cases have a stronger effect on either the granuloma or the fibrous parts of the tumefaction. The first is the most common, but in a smaller number of cases the medicine takes effect exclusively on the fibrous parts, making them shrink so rapidly that the thick fibrous wall surrounding the granuloma contracts to such an extent that the whole granuloma is expelled, partly by force and partly on account of obstructed blood circulation.

There is no doubt that these results, obtained by a treatment which in no case lasted more than seven weeks, and as an average not exceeding five weeks, permit us to say that in iodide of potassium we have found a valuable remedy in treating actinomycosis.

It now remains to decide which cases will prove of financial value for the farmer and breeder to treat, and this partly depends upon the facility with which the administration of the medicine can be performed. The amount of medicine used in a single case ought never to exceed 1 pound, equal to an expense of $3. We suppose any steer will be worth that much. If the affected animals are being kept in a stable, as for instance, in distilleries, the trouble about giving the medicine amounts to nothing. But where the animals are running loose in a pasture, and there is no convenient place to tie them up,

it is no easy matter to catch them and secure them every day while the medicine is given. On ranges and similar places, where several hundred head of cattle are kept, the easiest way is to keep the affected cattle in a large pen, in one side of which is built a narrow chute, into which the cattle can be driven one by one and treated. Such a chute may be constructed out of a few solid boards without much expense. To administer the medicine in the drinking water is not advisable, as it is then rather difficult to control the right dose. The cattle will not drink a pailful of water with a dose of iodide of potassium, except when they are very thirsty.

As to the different lesions, it has already been said that when the tumour is not connected with the bony tissue, but is lying loose in the connective tissue under the skin, a favourable result may be expected in from two to five weeks, according to the size of the tumour, and to the susceptibility of the individual toward the effect of the medicine.

It is not necessary to continue the treatment until the tumour has disappeared completely, but it may be stopped when it has shrunk to about one-third of its original size, and the remainder will usually disappear without further treatment. When a small tumour, about the size of a hen's egg is located on the cheek or on the outside of the lower jaw, it is usually very hard and can only be moved very little; so it is easily mistaken for a bony tumour. A careful examination, however, will soon prove that it is not bony, and when treatment is commenced it will rapidly decrease in size.

When the bone is affected, treatment is only advisable if the swelling does not exceed a goose egg in size on the lower jaw, or a walnut on the upper jaw, and has not penetrated the skin; but in any case the medicine will avert a further development of the disease if the animal is at all susceptible to its effect.

Two cases as above described, and with a small bony tumour on the lower maxilla, were killed on October 29th, 1892, after a six weeks' treatment. The bony swellings were then almost solid, contained no large cavities, and no traces of pus or soft tissue. In the centre of them was a bunch of white connective tissue, and from this extended a cord of the same material to the socket of the first molar. This was an obliterated fistula. The molar was not decayed, and was firmly embedded in the socket. This is a clear proof that actinomycotic lesions in the bony tissue can be successfully treated when they are taken in time.

Post-Mortem Examination.

November 29th, 1892, two lots of cattle experimented upon were killed. Each lot contained forty head, the one consisting of cattle that were supposed to be completely cured, while the second lot included all the old chronic cases, where a successful result could not be expected in the time limited for the experiment. . . .

The forty cattle which were supposed to be cured proved to be so with the exception of two, which had small actinomycotic tumours in the lung containing living actinomyces. In nine other cases traces of the disease were found at the place where the tumours had been located, but these traces were so insignificant, ranging in size from a pin's head to a bean, that they did not amount to anything.

The first lot were all in good condition, some of them very fat, and the greater part of the second lot also were in a very satisfactory condition, only a few of them being really poor. A noteworthy fact is that only two out of each lot had actinomycotic lesions in the internal organs, all cases in the lungs. This would hardly have been the case if the cattle had not been treated. In some cases a few small nodules, in size from a millet seed to a pea, containing a cheesy, greenish detritus mass, were found in the wall of the small intestines;

but a microscopical examination of these lesions gave negative results with regard to actinomycosis. The final result of the investigation was, that out of the first lot thirty-eight were passed as fit for human food, while the two cases affected with actinomycosis in the lung were condemned. Of the other forty only five were passed and thirty-five condemned, though many of them were big fat steers with the lesion located in the jaws and no internal lesions of any kind. The tumours on the greater part of these did not contain any pus, and the granulomatous tissue had undergone a fibrous metamorphosis, and subsequently did not contain any actinomyces possessed with regenerative power.

December 2nd, twenty more head of cattle were killed. These had been stabled in the same barn as the rest, and had been treated from three to six weeks each with proper intervals. They were all used to the distillery slops before the treatment began, and continued to grow in flesh while they were treated. They were all pronounced cases, but only the soft tissues were involved. The lesions were about the same as those in the first lot—hard, fibrous tumours, the size from a goose's egg to a child's head, located in the loose connective tissue under the skin in the submaxillary or sublaryngeal space. They all recovered completely, and at the *post mortem* examination no traces of the disease were found except in two cases, in which there was a hard, fibrous induration in the skin, where the tumours had been. They were all passed as fit for human food.

HORSE BREEDING IN THE UNITED KINGDOM.

THE following is a copy of the fourth report of the Royal Commission on Horse Breeding :—

"We, the Commissioners appointed to dispose of your Royal Bounty, which was formerly given in Queen's Plates for racing, and also the money which Parliament has granted for the encouragement of horse breeding in Great Britain, humbly desire to submit to your Majesty this our Fourth Report, in continuation of that which we had the honour to lay before your Majesty on the 5th of May, 1890.

"Since we had the honour of presenting our last Report, we have held three shows in London during the years 1890, 1891, and 1892, at which the Queen's premiums were awarded, and which were held in conjunction with the Royal Agricultural Society of England, the Hunters' Improvement Society, and the Hackney Horse Society. The number of stallions entered has been satisfactory, and we have been enabled to select suitable horses out of those exhibited to locate in the various districts in England, Wales, and Scotland.

"The number of unsound horses continues to bear a large proportion to those exhibited, but it is gratifying to find that the breeders of horses throughout the country are very ready to avail themselves of the advantages which this Commission is enabled to offer, by locating in the districts stallions which have passed a strict veterinary examination.

"The subject of veterinary examination has on various occasions exercised our most deep and earnest consideration, and we are endeavouring to formulate a scheme which we trust will ensure more consistency in these decisions than that hitherto adopted.

"We have thoroughly discussed the question of allowing stallions which have attained a certain age, and have been passed a certain number of times by our veterinary inspectors, to be exempt from further veterinary examination when presented again for competition, but we decline to adopt any such modification, as, from our experience, we are aware that hereditary diseases are occasionally developed at various stages of a horse's life.

"Since our last report was presented we have considered it to be to the

interest of breeders to raise the age at which thoroughbred stallions shall be eligible to compete for the Queen's premiums from three to four years old.

"The percentage of foals left by the stallions is, we venture to think, satisfactory. In one instance, however, on account of the small number of foals left, your Commissioners have deemed it desirable to exclude a stallion from further competing for the premiums.

"It is very gratifying to observe the success which attends the exhibition of the stock of the premium stallions when coming into competition with the stock of other horses at the summer meetings of the different agricultural societies.

"The Royal Agricultural Society of England, which has hitherto given three premiums of £200 each for stallions, in one of the English districts, has discontinued this grant. To provide for this withdrawal we feel that we have no alternative but to reduce the value of the premiums hitherto offered. We believe, however, that even at the reduced amount we shall still be able to secure the same class of stallions which have been winning up to the present time.

"We beg to append to this report information referring to the work of this Commission since the publication of our last report in May, 1890.

"The district committees who have been invited to act in the various districts, and who have supervised the local arrangements in connection with the Queen's premium stallions, are entitled to our warmest thanks, and we beg to avail ourselves of this opportunity of tendering to them our grateful acknowledgments."

TRICHINOSIS IN BELGIUM.

THE *Echo Vétérinaire* informs us that in the early days of last January, several families in Herstal, Liers, and Liege, in all thirty-six families, were simultaneously attacked by a singular malady, which was so variable in its course that the medical men who were called in began to question whether they were dealing with a single disease due to one and the same cause. In some cases the patients were seized with choleriform diarrhœa which raised suspicions of the presence of the common bacillus; in others, the tumefaction of the limbs and face of the sufferers appeared to indicate nephritis; at a later period, the symptoms of muscular rheumatism were so marked that it seemed as if the diagnosis was certain. The symptoms and the etiology were so obscure, that it was determined to have a *post-mortem* examination of two of the patients, and this settled the question as to the intimate nature of this badly defined disease; for multitudes of trichinæ, still in the free state, were found in the muscles of these persons, who were exhumed, they having succumbed on the 26th and 28th January, when nine individuals had already died. When the report was published thirteen had perished; so that the proportion of one-third noted in the German epidemics was here exceeded. Not only this, but the issue of some of the cases still lingering was very doubtful. It appears that all the people affected with trichinosis had eaten at Christmas and the New Year sausages procured from the same maker, and which had been prepared by frying. Those persons, on the other hand, who consumed these sausages only after they had been thoroughly cooked with vegetables, suffered no harm from them. In one household where this culinary precaution had been taken, a cat stole a piece of uncooked sausage and died in the course of time; its muscles contained a considerable quantity of trichinæ, nearly all of which were in the free condition, only a few being in the encystment stage. Infection was produced in a similar manner in a little girl who, in carrying home some of the sausages, ate only a small piece. The flesh

from which the sausages were made was derived from one pig which had been killed on December 22nd, and the carcase of which did not present anything suspicious on inspection. When the bacon was subsequently examined microscopically, there were discovered a prodigious number of trichinæ which, as they were nearly all in the free state, testified that the pig itself had only recently become infected.

An official order has been issued, prescribing a microscopical examination of the flesh of all pigs killed in the abattoirs; this examination to be conducted by competent veterinarians.

ENZOÖTIC VAGINAL CATARRH IN COWS.

Dr. Baldoni, of the Milan Veterinary School, gives an interesting account in the *Clinica Veterinaria* for last December, of an outbreak of infectious catarrh of the vagina among cattle on a farm in Lombardy.

It appears from his report that four months after the introduction of a new cow into a cowshed on this farm—which cow showed a vaginal discharge a few days subsequent to arrival—fifteen of the forty-five cows in the place had a similar discharge. This was clear, scanty, and tenacious at the commencement, but afterwards abundant and offensive. At the same time the cows became emaciated, the coat was unhealthy, and the secretion of milk diminished, while the temperature in the rectum varied between 38·1° and 39·7° per cent. The calves these cows produced after normal gestation, were very weakly. The bull which had consorted with the cows had also fallen off in condition, and had ulcers at the extremity of the penis.

Two of the cows were sent to the Milan Veterinary School, and examined at the Clinic. The vaginal mucous membrane was found to be hyperæmic, and here and there were small mortified patches. The animals were placed in a stable with another cow, which was quite healthy in this respect, and four days afterwards it had the same kind of vaginal discharge.

A second visit was paid to the farm a month afterwards, when it was discovered that only four of the cows had escaped, two heifers being affected like the cows.

A microscopical examination of the discharge revealed, among various micro-organisms, a great number of fine bacilli, which in stained preparations much resembled those of bovine tuberculosis. Cultivations on agar-agar yielded two quite distinct colonies—one white, the other a clear yellow. The upper part of one of these cultivations, removed by means of a sterilised glass rod, was introduced into the vagina of a healthy cow, and ten days afterwards this animal presented the characteristic symptom of the disease—the vaginal discharge. From this a new culture was made on gelatine, which became liquified on its upper surface, and slightly opaque.

Dr. Baldoni is of opinion that in this outbreak there was a special infection which took place by cohabitation and by contact. The bull was the chief agent in disseminating the contagium, by passing from cow to cow, but he was not the primary cause of the disease, as this manifested itself in the two heifers which had not been with him, a fact which also proves that this was not a simple vaginitis, as the latter usually follows parturition, and is not transmissible; neither was it of the nature epizootic abortion, for the same reason; and also because all the calves from the diseased cows were produced at full term. It is also to be remarked that fecundation was not hindered. Consequently, Baldoni is inclined to believe that it is a special disease, and he proposes to study it more completely as opportunity offers.

THE UNIVERSITY OF BOMBAY.

We are gratified to observe that His Excellency the Governor of Bombay has been pleased to nominate Veterinary-Captain J. Mills, Army Veterinary Department, to be a Fellow of the University of Bombay. Captain Mills is Director and Professor in the Bombay Veterinary College, and has been for nearly two years an examiner in the University for its Agricultural diploma. His election as a Fellow gives him a seat in the Senate of the University.

MARYLAND AGRICULTURAL COLLEGE.

Mr. Robert Ward, F.R.C.V.S. has commenced a special course of lectures to the students of the Maryland Agricultural College (United States), and it is hoped to make these lectures a permanent feature of that institution.

VOMIT SICKNESS AMONG SHEEP IN SOUTH AFRICA.

BY D. HUTCHEON, M.R.C.V.S., COLONIAL VETERINARY SURGEON, CAPE OF GOOD HOPE.

The peculiar disease known as Vomeerziekte, or Vomit Sickness, affects sheep in certain localities of the districts of Hope Town, Carnarvon, Prieska, Victoria West, Kenhardt, and adjoining districts in the Cape Colony. The general opinion respecting the originating cause of this disease, or functional derangement of the stomach, is that it is due to a certain bush known as the "Vomeer boschje" (*Geigeria passerinoides*). During 1886, I conducted some feeding experiments with this bush, but failed to produce any symptoms of the disease, even by administering large quantities of it.

There is another opinion respecting its cause, viz., that it is due to the sheep eating a quantity of sand in their efforts to get at the young grass which springs up after a rain in the Karroo districts. This sand accumulates in the bowels, or rather at the pyloric or bowel end of the stomach, and blocks up the passage. I was unable to confirm this opinion also, as I found no such obstruction in any of the cases which I examined *post mortem*.

The immediate cause of death in the majority of the cases which I have examined was *Broncho-pneumonia*, or inflammation of the lungs and bronchial tubes. This condition of the lungs, however, was merely a secondary effect of the primary irritation and derangement of the stomach. The affected sheep cough and vomit, they also make an effort to swallow at the same time. It is during this act of coughing and vomiting that a certain portion of the food passes down the wind-pipe into the lungs, and sets up violent irritation and inflammation. There could not be any doubt about this, as I found some of the vomit in the bronchial tubes of those examined. On examining a sheep in the early stages of the disease, I found the lungs free from any appearance of irritation or disease, and I failed to discover any obstruction in any portion of the stomach or bowels, or any sand in any part of the digestive tract.

Symptoms.—The affected sheep walks behind the rest of the flock, with a dull and dejected appearance, and at short intervals it will attempt to vomit. This action is accompanied by a distressing sickly cough. There is not much food expelled from the mouth, as the sheep makes an effort to re-swallow the food brought up. The sheep, when very sick, does not feed.

Cause.—From the limited number of examinations which I have made, I am of opinion that the disease is due to some peculiar vegetable nervous irritant which is taken in with the food, but whether this irritant is some distinct plant, or some peculiar fungus on the plants, I am unable to say.

Treatment.—Many farmers successfully give lye (a liquid commonly used in the Colony for making soap). Mr. D. Williams, of Snydam, Victoria West, was, I believe, the first to publish this as a cure for vomeerziekte; he gives one tablespoonful every morning.

I have not experimented with lye (a strong solution of Loog-as), but great benefit is gained by giving:—

Bicarbonate of soda	A dessertspoonful.
Laudanum	Two teaspoonfuls.
Water	Half a pint, or a tumblerful

Repeat this dose daily.

The affected sheep should not be allowed to follow the flock: they should be placed in a quiet place and disturbed as little as possible. They cannot eat; besides, the stomach is better to be left undisturbed by any additional food until the irritation ceases.—*Cape of Good Hope Agricultural Journal.*

Army Veterinary Department.

Veterinary-Lieutenant A. H. Sullivan embarked in H.M. troop-ship "Malabar," on March 4th, for a tour of service in India, to relieve Veterinary-Lieutenant L. J. Blenkinsop, Bengal.

Veterinary-Lieutenant W. D. Smith embarked with No. 32 Field Battery, Royal Artillery in Third Transport "Jumna," on March 14th, to take veterinary charge of the horses on board, and for duty in Egypt.

Veterinary-Lieutenant H. P. Turnbull accompanied the 7th Dragoon Guards from India to Egypt, returning to India on the disembarkation of the horses.

Veterinary-Colonel J. D. Lambert, C.B., Director General, Army Veterinary Department, attended Her Majesty's Levée, on March 13th, and presented the following officers to H.R.H. the Prince of Wales:—Veterinary-Majors W. Burt, R. Rowe, and S. M. Wilson; Veterinary-Captain J. K. Grainger; Veterinary-Lieutenants D. J. Barry, H. M. Maxwell, and A. England.

Veterinary-Captain S. Longhurst was also presented by Lieutenant-General Sir H. E. Wood, G.C.B., &c., on appointment as Professor, Army Veterinary School.

Obituary.

THE deaths are reported of Joseph Larkin, M.R.C.V.S., County Louth, who graduated in 1884; and Alex. Nimmo, M.R.C.V.S., of Linlithgow, who received his diploma so long ago as 1827.

The veterinary profession in Belgium has lost one of its oldest members by the decease of M. Gerard, Chevalier of the Order of Leopold, and Emeritus professor of the State Veterinary School, in which he commenced to teach in 1856, and from which he retired in 1883, having reached the age limit. Professor Gerard was the author of two valuable works in Zootechny, besides many papers on veterinary subjects, which appeared from time to time in the *Annales de Méd. Vétérinaire.*

Parliamentary Intelligence.

HOUSE OF COMMONS, February 28th.

FOOT-AND-MOUTH DISEASE.

Mr. FELLOWES asked the President of the Board of Agriculture if it was a fact that on or about February 18th, the veterinary adviser of the Board of Agriculture inspected some animals on a farm near Hastings, and decided that

they were suffering from foot-and-mouth disease, and whether these same animals were still alive?

Mr. GARDNER: Yes, Sir, the facts are as stated in the question. I may add that it frequently happens that the slaughter of animals affected with the foot-and-mouth disease is attended with greater risk than the keeping of them alive under strict observation and in perfect isolation. I came to the conclusion that this would have been the case in the present instance.

Mr. CHAPLIN asked whether the right honourable gentleman's remarks did not apply to a strictly limited number of cases? He also asked what steps had been taken to prevent the spread of the disease, and whether the Board were able in any way to account for the origin of the outbreak?

Mr. GARDNER: It has not been the uniform practice of the Board to slaughter and compensate in cases of foot-and-mouth disease. We have no information at the present moment as to the origin of this outbreak. Every precaution possible to be taken has been taken on this occasion, and we have great hopes of being able to prevent the disease from spreading.

Sir R. PAGET asked whether they were to understand that it was the opinion of the Board of Agriculture that it would be a greater danger to the country to slaughter these animals than to keep them alive?

Mr. GARDNER: Under certain circumstances. In this instance the animals are strictly isolated, and there would be a greater danger to the surrounding country through the slaughterer carrying the disease away from the building than there would be from keeping the animals alive.

Sir R. PAGET: Is there a greater danger attending the entrance of the slaughterer than of the veterinary inspector of the Board of Agriculture?

Mr. GARDNER: Those who go to these buildings at the present moment are strictly limited, and they have to go in special dress.

Sir R. PAGET: Could the slaughterer not wear that dress?

No answer was given to the question.

Mr. J. LOWTHER asked whether a further outbreak had not taken place on the premises referred to, subsequent to the visit of the inspector?

Mr. GARDNER: It is perfectly true that there were animals on the premises which subsequently became affected.

Mr. LOWTHER: Did the further outbreak not occur in a separate yard?

Mr. GARDNER: No; in the same yard.

Mr. FELLOWES asked whether the time was not approaching when it was absolutely necessary that the farmers should have open markets, and whether therefore when an outbreak occurred he would order the immediate slaughter of the animals.

Mr. GARDNER: The order for immediate slaughter has nothing to do with the opening of the markets.

March 2nd.

GLANDERS AND FARCY IN LONDON.

Mr. E. H. BAYLEY asked the President of the Board of Agriculture whether, in view of the alarming increase of glanders and farcy in London, upwards of 2,000 cases having occurred in 1892, being 90 per cent. of the cases in the country generally, and the fact that glanders and farcy were contagious for human beings as well as horses, he would take measures to stamp out the disease by means of a system of inspection of stables and compulsory slaughter of infected horses, with or without compensation of owners.

Mr. H. GARDNER said he issued an order in September last, and under that order vigorous measures were taken by the County Council, assisted by the police. He was happy to say that the number of outbreaks recorded in the present year was less than in the corresponding period of 1892. There was

no cause whatever for alarm on the subject, and he was carefully watching the operation under the order with a view of seeing whether any further action on his part was necessary.

March 7th.

CONTAGIOUS PLEURO-PNEUMONIA OF CATTLE.

Mr. MACARTNEY called attention to the introduction of pleuro-pneumonia into the United Kingdom in September last by the importation of foreign cattle affected with that disease, and moved a resolution expressing the opinion of the House that, subject to the exemptions contained in section 2 of the fifth schedule of the Contagious Diseases (Animals) Act, 1878, no foreign animal landing in this country should be allowed to leave the wharf alive.

Sir M. J. STEWART seconded the resolution.

The SOLICITOR-GENERAL, while sympathizing with the object of the resolution, pointed out that it asked the House to do nothing less than to repeal an Act of Parliament. The exemptions contained in the Act of 1878 related to animals brought to this country in order to be exhibited or for other exceptional purposes, but with regard to all other foreign animals imported it was provided that they should not be allowed to leave the wharf alive. It was equally plain from the provisions which followed that the Privy Council, now represented by the Board of Agriculture, if reasonably satisfied that no danger would arise, might allow foreign animals to be introduced into this country alive instead of being slaughtered at the port of debarcation. He contended that no resolution of the House of Commons could properly override an Act of Parliament.

Mr. DARLING spoke in support of the resolution, which was opposed by Dr. FARQUHARSON, Mr. LENG, and Mr. W. WHITELAW.

Mr. GARDNER said the Government held that the resolution was too drastic, and he denied that there was any special reason for bringing it forward at the present time. The Act of 1878 was compulsory and not permissive as regarded the Board of Agriculture, which was obliged to enforce the restriction whenever it became necessary to do so. No one could deny that the total prohibition of the entry of all live cattle from foreign countries must be a measure of a protective tendency, and opposed to the general principles of free trade. The resolution was unnecessary and inopportune, and he hoped the House would reject it by a large majority.

Mr. CHAPLIN admitted that this was in one sense a protective resolution, because, like the laws relating to vaccination, it sought to afford a protection against disease. The policy pursued in this country during the last few years had resulted in an immense increase of our own flocks and herds and a corresponding decrease in the price of meat. We were now arrived within measureable distance of being absolutely free from pleuro-pneumonia in the future, but in order to secure this object it was essential that all animals arriving in this country should be slaughtered immediately on their arrival.

On a division the resolution was negatived by 186 to 151.

March 17th.

TUBERCULOSIS.

Mr. FIELD asked the President of the Local Government Board whether, having regard to the uncertainty and frequent loss accruing from the purchase of native cattle owing to the law not providing compensation for tuberculosis, the Government would accelerate the issue of the Bovine Tuberculosis Report, and meantime compensate owners for seizure and confiscation.

Mr. H. FOWLER: I am informed by the Royal Commission on Tuberculosis that it is impossible to give precisely the date of the termination of the

work of the Commission and of the presentation of their report. This will depend mainly on the issue of the experimental inquiries which are still being carried on. It is stated, however, that as far as can at present be calculated the experiments on animals will be concluded by the end of April, or within a fortnight of that date, and before the end of June it is anticipated that the whole of the microscopical investigation will be completed and the reports of the three sub-inquirers will be in the hands of the Commission. Their deliberation thereon will follow, and their report will be presented as soon as possible afterwards. The Government are not prepared to make proposals to Parliament with respect to compensation until that report is presented.

FARCY AND GLANDERS.

In answer to Mr. FOSTER,

Mr. CAMPBELL-BANNERMAN said: No horse in the Army, the property of the Government, has been affected with farcy or glanders during the last five years. The Army stables are free from the disease, as a result of good sanitary measures and of precaution against contagion.

In answer to Mr. FOSTER,

Mr. GARDNER said,—Soon after my advent to office my attention was drawn to the increase of glanders and farcy, and to the fact that upwards of 90 per cent. of the cases occurred in the metropolitan area. In September last I issued an order which, amongst other things, empowered local authorities to slaughter diseased or suspected animals on payment of a limited measure of compensation. I believe that the adoption of that course would necessarily have the beneficial effect indicated in the question, but the London County Council decided that they were not justified in incurring the heavy expenditure which the payment of compensation would entail. I view their decision with regret, but at the same time it is quite open to the County Council to argue that by the active enforcement of the other provisions of the order they can achieve the desired result at much less cost to the ratepayers, and this view is to some extent confirmed by the fact that the number of horses reported to have been attacked during the current year shows a substantial falling off as compared with the corresponding period of last year, the numbers being respectively 433 and 486. In these circumstances, I do not contemplate taking any further steps at the present moment, but I shall continue to give my close attention to this important subject.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

MEETING OF COUNCIL, HELD FEBRUARY 23rd, 1893.

W. J. MULVEY, Esq., President, in the chair.

Present:—General Sir F. Fitzwygram, Bart.; Veterinary-Colonel Lambert, C.B., Veterinary-Lieutenant-Colonel Oliphant, Veterinary-Captain Raymond; Professors Edgar and Penberthy; Messrs. Beddard, Hunting, Merrick, Mason, Simpson, Trigger, Wheatley, Wragg, Mr. Thatcher (Solicitor), and A. W. Hill (Secretary).

The SECRETARY read the notice convening the meeting.

On the motion of Mr. WRAGG, seconded by Mr. SIMPSON, the minutes of the previous meetings were taken as read and confirmed.

Absentees.

The SECRETARY stated that he had received letters from the following gentlemen regretting their inability to attend the meeting:—Professors Walley and McCall, Messrs. Hartley, Burnett, Donald, Kidd, Hedley, and Fraser.

Presentations to the Library.

The SECRETARY announced the following presentations:—"Veterinary Medicine" and "Veterinary Hygiene," by Professor Veterinary-Captain Smith; the "Calendar and Register" for the current year of the Pharmaceutical Society.

On the motion of Mr. SIMPSON, seconded by Mr. MASON, a vote of thanks was accorded to the donors.

Correspondence.

Letters were read from Professor Walley and Mr. Burnett expressing the hope that the Council would postpone the consideration of the report of the sub-committee on the Fellowship Degree until the next quarterly meeting, when it could be discussed by the whole Council.

Royal Agricultural Society's Prize.

The SECRETARY announced that Royal Agricultural Society's prizes had been awarded to Messrs. Clunes and Hobday, students of the Royal Veterinary College, London.

Remuneration to Examiners.

The SECRETARY read the report of the sub-committee appointed to consider the subject of fees to examiners, &c., which recommended that the following fees be paid:—Class A, per candidate, 4*s.*; Class B, 5*s.* 6*d.*; Class C (oral), 5*s.* 6*d.*; and Class C (practical), 7*s.* 6*d.*, these sums to include setting and marking candidates' papers. That in view of the four years' scheme coming into operation after April, 1895, Mr. Rutherford be written to that the subject of his letter to the Council be deferred.

The PRESIDENT said that Mr. Rutherford had addressed a letter to the Council asking that his remuneration might be increased in consequence of the very large increase of work. That letter was referred to the sub-committee, but as many alterations would be taking place in 1895, it was thought better to defer the question until that period. He might point out that on and after May next there would be a written examination in each class, and that would certainly very much increase Mr. Rutherford's duties. He was appointed by the Council in 1883, and there had been no re-appointment since.

Mr. TRIGGER asked why the Council should appoint all its officers annually except the Scotch Secretary.

The PRESIDENT said he believed it had been an oversight. As a matter of fact, on the strict interpretation of the clause he thought the Secretary of the Board of Examiners should be appointed at the same time as the Examiners.

Veterinary-Captain RAYMOND suggested that the advice of the Solicitor should be taken on the point.

Mr. THATCHER said he understood the bye-law to provide that the officers should continue as long as the Court of Examiners continued. If they appointed the Secretary to the Scotch Board at the same time as they appointed the Court of Examiners they would be within their rights; at the same time it would be as well to have a definite understanding with him on the subject.

Mr. TRIGGER said he thought all the appointments should be annual, and if necessary he would give notice of a resolution to that affect.

Professor PENBERTHY said he thought the point should be made clear. The Council was not at all bound to follow the proposals of the Committee;

and as they were to elect a board of examiners, if the construction was going to be put on the bye-law that the Solicitor seemed to think it bore, they must be prepared to elect a new Secretary to the Board of Examiners, and consider what the work and pay should be. Of course that must be done independently of Mr. Rutherford or anybody else.

Veterinary-Colonel LAMBERT said that supposing the London Secretary from any cause resigned his office they would be in the same dilemma as they then were, by his being Secretary as long as the Board of Examiners lasted for which he had been elected Secretary. He, therefore, moved that the Secretary to the Examiners be elected annually.

Mr. TRIGGER seconded the motion.

Mr. SIMPSON moved as an amendment—"That it be an instruction to the Secretary to include in the business to be transacted at the meeting at which the next Board of Examiners are appointed, the following: 'To elect Secretaries to the Board of Examiners for England and Scotland for one year.'"

Mr. MASON seconded the amendment, which was agreed to.

The PRESIDENT then asked the Council to consider the remuneration to the Examiners. The recommendation in the report would, he said, effect a saving of about £200 a year.

Mr. SIMPSON asked with reference to Class C (practical), if the Committee had taken into account the length of time that would be occupied in examining the papers and conducting the examination. He noticed that the Committee recommended that 7s. 6d. should be paid per candidate.

The PRESIDENT said it was not proposed that there should be any papers beyond writing the ordinary certificates and prescriptions. The time reckoned would be half an hour.

Mr. SIMPSON said that in that case the examiners would earn 15s. an hour. He should like to know how long the Practical Examiners would have to work.

The PRESIDENT said that six hours was the usual time.

Professor PENBERTHY said that that would be £4 10s. per diem.

Mr. TRIGGER said he considered it an anomaly that a Practical Examiner should get less than a Class A Examiner—£4 10s. as against £4 15s.

Mr. MASON moved the adoption of this part of the report.

Mr. MERRICK seconded the motion.

Professor PENBERTHY moved as an amendment that an extra 6d. per student be added to the fee for the Class C (practical) Examination.

Mr. SIMPSON seconded the amendment, which was agreed to.

The report of the sub-committee as amended was adopted.

The PRESIDENT said that with regard to Mr. Rutherford's letter, the committee had recommended that in view of the four years' scheme coming into operation after April, 1895, Mr. Rutherford be informed that the subject of his letter to the Council be deferred till that time.

Professor EDGAR moved—"That in the opinion of the Council the office of Secretary to the Scotch Board of Examiners terminates on the retirement of the Examining Board, and that the subject of the Secretary's fees will be duly considered at the re-election of the Board."

Mr. HUNTING seconded the motion, which was agreed to.

The PRESIDENT said that Mr. Rutherford evidently imagined that he was permanently appointed, and he asked for an increase of salary. Was it the wish of the Council that a secretary be advertised for?

Mr. SIMPSON said he thought it would be exceedingly bad form on the part of the Council after they had been served by so valuable an officer as Mr. Rutherford had proved himself to be, to let that gentleman think that there was any idea that his services had not been heartily approved. He would therefore propose, "That the Council do not advertise."

Veterinary-Captain RAYMOND said that the question of advertising for examiners was not because the Council found fault with the old examiners, but that it was a matter of principle. They all thought very highly of Mr. Rutherford, and that was all the more reason why the procedure should then be settled, because there could be no personal matter mixed up with it. They made no reflection on Mr. Rutherford by advertising. They were simply establishing the principle that the secretary should go with the examiners.

Mr. SIMPSON said there were several reasons why the Council should not advertise. It must be known to every member who had been present at the examination or had taken part in the discussions at the Counell, that the duties of the secretary to the Examining Board were peculiar, and that it took a man a considerable length of time before he was able to master them.

Mr. HUNTING said the objection to the present system seemed to be that it put the Scotch secretary to the Board of Examiners into the possession of a permanent appointment, and if Mr. Simpson's principle were adopted the Council would never be able to change the Scotch or any other secretary without being guilty of bad form, and he objected personally to being put in that position. The only way of avoiding Scylla and Charybdis appeared to be to advertise every year for a secretary to the Board of Examiners for Scotland.

Mr. SIMPSON said that his proposal was that no secretary be advertised for.

Mr. WRAGG seconded the motion.

Veterinary-Captain RAYMOND moved, as an amendment, that the Council should advertise for a secretary to the Scotch section.

Mr. HUNTING seconded the amendment, which was carried by six votes to five.

Fellowship Examination.

The PRESIDENT said that the report of the sub-committee appointed to consider the Fellowship Degree had been sent to every member of the Council, and he would propose that they should proceed to consider it clause by clause.

The report was as follows:

Report of the Sub-Committee appointed to consider the Fellowship Degree.

The Committee, after careful consideration, recommend that after the next annual appointment of Examiners the examination shall be conducted in the following order. The Committee have to express their regret that they were unable to examine any of the previous written papers, in consequence of the Secretary having destroyed them,—by order, he states, of the Chairman of the Examiners. The examination shall consist of:—

1st. A thesis.

2nd. A written examination on the following subjects:—

1. Veterinary medicine and surgery (recognition of specimens microscopically and macroscopically).
2. Veterinary hygiene and sanitary science.
3. Pathology and bacteriology (recognition of specimens microscopically and macroscopically).

3rd. That the candidate shall defend his thesis for half an hour before the whole of the examiners.

A candidate, when sending his thesis, shall sign a declaration that it is his own production; he shall also acknowledge all quotations obtained from books or pamphlets.

The thesis is to be signed by a motto only, and accompanied by the name and address of the candidate enclosed in a sealed envelope.

The written papers to be numbered by the Secretary.

Any distinguishing mark on the thesis or written papers will disqualify the candidate.

That there be three examiners.

Each examiner to mark his own questions.

That there be four questions in each subject, three of which must be answered.

Each examiner to send four specimens (two microscopical and two macroscopical).

One hour and a half to be allowed for each written paper, and one hour for the recognition of specimens.

The President of the Royal College of Veterinary Surgeons or a delegated member of the Council to attend and act as Chairman of the Board of Examiners.

No communication shall be made of anything that takes place at the examinations except in writing to the Council.

The marks: maximum 100 in each subject, and an aggregate of 60 per cent. to be obtained. Failure to obtain 30 per cent. in any one subject will disqualify.

In the event of the thesis of a candidate being accepted, and he fail to obtain the necessary qualifying number of marks in the written examination, he shall not be required to furnish a new thesis on again presenting himself for the written examination.

In view of an examination the Secretary to apply to the examiners for questions and specimens: the questions shall then be printed and distributed to the candidates at the examination.

That there be at least two examinations held during the year, in the months of May and December.

A candidate, on making application to be admitted to the examination for the Fellowship Degree, shall send to the Secretary the following form of certificate, signed by three Fellows of the College.

"We hereby certify that Mr. of , a Member of the Royal College of Veterinary Surgeons, has been engaged in the practice of his profession for five years and upwards, and is a fit and proper person to be examined for the Fellowship of the Royal College of Veterinary Surgeons.

"Witness our hands this day of , 18 ."

When the candidate sends in his thesis it shall be accompanied by an entrance fee of five guineas, and on passing the examination and receiving the diploma he shall pay a further sum of ten guineas.

All examination papers to be retained by the Secretary.

The fees to be paid the examiners shall be one guinea per candidate.

Mr. HUNTING said, that with regard to the first paragragh some members might like to know whether it was the customary thing to destroy the papers of a written examination without an order from the Council, and, if so, whether that would be continued in the future. If examiners had the power to burn Fellowship papers, no doubt they would have the power also to burn membership papers. He wanted to avoid the burning of papers without the Council knowing anything about it, on the order of the examiners, because it seemed to him to be an outrageous proceeding.

Mr. SIMPSON thought that if the Council appointed examiners in whom they had perfect confidence, they should accept their verdict without looking behind it.

The PRESIDENT said he thought a resolution had already been passed that all papers should be preserved, both membership and fellowship. Coming to the next line, he would propose that it should read as follows:—The examination shall be taken in the following order, and consist of."

The alteration was agreed to.

The PRESIDENT said that the next line was "a thesis." He should like it to read "a thesis to be accepted or rejected by the examiners."

Mr. WRAGG asked whether the examiners would get a fee of a guinea for listening to the thesis of a candidate who was rejected?

Professor PENBERTHY said that if the thesis were rejected the candidate must come up again, and pay a re-examination fee.

Veterinary-Colonel LAMBERT said he considered the thesis to be by far the weakest part of the examination, and he suggested that if the candidate's thesis were full of errors, and he had paid his five guineas, he should be allowed to be examined all through. The report stated, "In the event of the thesis of a candidate being accepted, and he fail to obtain the necessary qualifying number of marks in the written examination, he shall not be required to furnish a new thesis on again presenting himself for the written examination." If that proviso were made in favour of the thesis, why not also in favour of the other subjects?

Mr. HUNTING said the Committee had provided against that by the candidate having to defend his thesis before the whole of the examiners.

Mr. TRIGGER said that a man had to send in a thesis, and if the thesis were accepted he had to pass an examination.

Mr. SIMPSON thought it was hardly right to reject a candidate on account of his thesis. He should have an opportunity of going right through the examination.

Veterinary-Colonel LAMBERT said that if a candidate passed his thesis, and was examined again, he should not have to write another thesis; but if he failed in his thesis he would be rejected *en bloc*. He thought that that was hardly fair.

General SIR FREDERICK FITZWYGRAM said that if the Council were going to rule that a candidate who failed in one subject, the thesis, had a right to re-examination, must it not establish the same rule with regard to every other subject? He held that the man would at once show such an incapacity, if he failed in his thesis, that he would be totally unfit to pass his examination, and therefore there was no need to give the examiners further trouble.

Mr. TRIGGER moved that the paragraph be accepted as it stood, "1st. A thesis" to be accepted or rejected by the examiners.

Mr. HUNTING seconded the motion, which was agreed to.

On clause: "Each examiner to mark his own questions,"

Veterinary-Colonel LAMBERT asked whether that marking was final. He had been engaged in going over a good many examination papers, and hot disputes had often occurred as to how many marks a man should get. He thought the examiners should go over the papers afterwards to see whether they agreed, because he had known a case where a candidate had given a splendid answer, but had been awarded a black mark through the ignorance of the examiner.

Professor EDGAR said the examiner who set the questions would be supposed to have special knowledge of the subject, and he would certainly be the most qualified to mark the paper.

Veterinary-Colonel LAMBERT said the way he had seen it done was that the three examiners met together and apportioned the marks after reading the questions and answers. It took no more time than the other way.

Professor PENBERTHY said that the three examiners were chosen as specialists, and a person would hardly care to mark the papers who was not a specialist. If a physiologist were to set a question he should look upon it rather as arrogance if he were to examine the candidate, whereas if it came to veterinary surgery he should consider he was the proper person to examine, and not the physiologist.

Veterinary-Captain RAYMOND said the idea was that when the examiners went over the papers they should annotate the marks given to each answer.

Professor PENBERTHY said that in his opinion each paper should be marked by each examiner, and marked with the number of marks awarded. He thought the paragraph should read :—"Each examiner shall place against each answer the number of marks assessed to it of his own questions."

Veterinary-Captain RAYMOND seconded the motion, which was agreed to.

On clause: "The President of the Royal College of Veterinary Surgeons or a delegated member of the Council to attend and act as chairman of the Board of Examiners,"

Mr. SIMPSON thought that someone should go from the College to see that the examination was properly conducted, but he would propose that the paragraph should end with the words, "to attend the examination."

Professor PENBERTHY said the Council had just decided that each examiner should mark his own questions, and consequently the chairman would be relieved from all responsibility in that matter. He would simply have to act as chairman of the board when the diplomas were being granted.

Mr. SIMPSON said he never heard of the chairman of a committee or any other board having no voice in that board or committee over which he was presiding. He thought the position would be an extraordinary one for a man to go and sit as chairman and have no voice in the matter. The sub-committee would be content if the President or a member of the Council were present, but they ought not to make him chairman of the Board of Examiners.

Veterinary-Captain RAYMOND said that the delegate would be present as an officer of the Council, and the chair would be taken by him, but he would not interfere with the examinations.

Professor PENBERTHY said that his idea was that the delegate should have the power of signing the report to the Council. They would then know from a member of the Council what was going on at the examinations. It would remove the little friction that had existed for some time past.

Mr. MASON seconded Mr. Simpson's amendment that the paragraph should read as follows :—"The President of the Royal College of Veterinary Surgeons or a delegated member of the Council shall attend the examinations."

The amendment was then put, six voting in its favour and seven against, and the clause as it originally stood was adopted.

On clause, "All examination papers to be retained by the secretary,"

Professor EDGAR moved the addition of the words, "until otherwise ordered by the Council."

Mr. SIMPSON moved the following further addition :—"And to which no one shall have access without the consent of the Council."

It was agreed that the paragraph should read as follows :—"All examination papers to be retained by the secretary until otherwise determined by the Council, and no person to have access to them except by an order of the Council."

On clause, "The fees to be paid to the examiners shall be one guinea per candidate and travelling expenses,"

Mr. WRAGG said that with regard to the travelling expenses he might say that none had yet been paid, because the three examiners were London men. They were also members of the Board of Examiners of the Royal College of Veterinary Surgeons, and therefore the examinations for the Fellowship degree which had taken place in Edinburgh had been fixed at the same time as the other examinations, so that there had really been no travelling fees paid.

Veterinary-Colonel LAMBERT said he thought every examination should be so ordered as to pay its way, even if it had to be made a moveable feast. It would be a very odd thing to have one candidate, say in Edinburgh, and that three examiners should go down there, whose travelling expenses and fees were to be paid.

The PRESIDENT said that there was nothing to compel the Council to hold an examination in Edinburgh; the candidate would have to come to London.

Mr. SIMPSON said that the examinations had always been held to suit the convenience of the examiners and not that of the candidates.

Veterinary-Colonel LAMBERT thought something ought to be tacked on to the paragraph saying where the examination should take place.

Mr. HUNTING asked whether when the new examinations came into force they would be covered by the present bye-law.

The PRESIDENT said that they would not, and the Council would have to give notice that those rules were to be substituted for the existing bye-laws.

Professor EDGAR asked whether a paragraph could not be inserted that there should be two examinations held during the year, in May and December, either in Edinburgh or in London, dependent upon the number of candidates.

Mr. TRIGGER suggested that no examination should be held unless there were at least four candidates.

Veterinary-Captain RAYMOND thought that such a course would be unfair to certain candidates, and a great drawback to the examinations.

The paragraph was then agreed to.

The PRESIDENT said he had inserted one additional paragraph—"That the fees to be paid on each examination shall be three guineas."

Mr. TRIGGER said he did not see any use in making any reduction in the fees, and he moved that the same fee be paid.

The PRESIDENT asked whether the Council would agree to make it five guineas instead of three guineas.

The clause, "The fees to be paid on each re-examination shall be five guineas," was then agreed to.

The PRESIDENT said an additional clause had been suggested, viz., "That the clauses that apply to written examination for membership shall be in force, that the passage of papers, reference to books or documents, talking or copying, will entail immediate dismissal from the examination."

The clause was agreed to, and the report as amended was adopted.

The PRESIDENT said that as the new rules would involve an alteration in the bye-laws, it would be necessary that they be suspended for three months.

On the motion of Mr. HUNTING, this was agreed to.

Fellowship Examination.

The SECRETARY read the report of the Fellowship Examination, which stated that the following gentlemen had been admitted Fellows of the Royal College of Veterinary Surgeons:—Veterinary-Captain Smith, Veterinary-Lieutenant H. M. Maxwell, Mr. E. C. Winter, Veterinary-Captain S. Longhurst, Mr. Gubbin, Mr. J. C. McKenna, Mr. F. Leigh, Mr. J. Armstrong, and Mr. Thomas Aubrey.

Registration Committee.

The SECRETARY read the report, which recommended that investigations be undertaken in the case of certain individuals, and, if necessary, prosecutions. Undertakings had been received in three cases to discontinue certain practices, and several cases of persons styling themselves "veterinary chemists" had been brought before the Committee, and it had been decided that action should be postponed until the result of the appeal in the test case in hand was known. Cautionary notices had been directed to be sent in other cases; and it was also recommended that the names of two members of the profession be restored to the register, those gentlemen having given the necessary evidence and paid the fees.

On the motion of Mr. TRIGGER, the report was received and adopted.

Gresham University.

The PRESIDENT stated that there had been a project in hand for some time past with a view of founding a University which should grant degrees, and the subject had been watched by the officers of the College. A Royal Charter of Incorporation had been applied for, and it was necessary to see that it contained nothing which would interfere with their rights.

Mr. THATCHER said that the most important part of the Charter as affecting the College, was a clause giving the University power to confer degrees. In accordance with instructions from the President, he had prepared a memorial setting up shortly the constitution of the College, especially with regard to the educational part of their scheme, bringing forward the four years' course and showing the amount of study now required for the purpose of entering the veterinary profession. He had set out the subjects of examination, and had asked that, if necessary, evidence might be heard from members nominated by the Council before any scheme was passed which might involve the veterinary profession.

Veterinary-Captain RAYMOND asked whether there was any reason to suppose there was likely to be any interference with their interests.

Mr. THATCHER said that the protection asked for by the College was also asked by the Royal College of Surgeons, who were strenuously opposing the Charter.

Mr. SIMPSON moved that the proposed communication to the Royal Commission be sent, and Mr. TRIGGER seconded the motion, which was agreed to; and it was also ordered that the seal of the College be affixed to the memorial.

Travelling Expenses of Delegates.

Mr. SIMPSON gave the following notice of motion: "That the following bye-law, which was passed by the Council on the 7th January, 1893, and confirmed at a special meeting of Council of 17th January, be rescinded, viz: 'That the travelling expenses of the delegates be defrayed from the funds.'"

Election of Clerk.

The PRESIDENT said that, in accordance with the instructions of the Council, an advertisement for a clerk had been inserted in the *Times*, and there had been twenty-five replies.

On the motion of Mr. SIMPSON, seconded by Mr. MERRICK, it was resolved: "That a committee, consisting of the President, Mr. Wragg, and Mr. Simpson, be appointed to select from the list of applicants a clerk, and to appoint him."

Reports of Committees.

Mr. WRAGG moved that in future the reports of Committees be signed by those Committees before they were submitted to the Council. He did so because some paragraphs in the report that had been presented, unknown to the Council, had been taken objection to by members who sat upon those Committees, they saying that the paragraphs were not as they were intended to be by the Committee.

The PRESIDENT said he believed a resolution to that effect was already in operation, but he was sorry to say the resolutions of the Council were not always carried out as they should be.

Veterinary-Colonel LAMBERT seconded the motion.

Mr. HUNTING said he should most decidedly object to signing any Committee's report if he were in the minority.

Mr. WRAGG said the course snggested was adopted by the Farriers' Company, and by many other bodies that he could mention.

The resolution was agreed to.

SPECIAL MEETING.

The PRESIDENT said that the special meeting had been called for the purpose of altering Bye-law No. 20. As the four years' course came into operation in 1895, it was thought advisable that the examiners should only be elected up to that time. He therefore moved "That the examiners to be elected at the forthcoming election only remain in office until the four years' course comes into operation."

The motion was agreed to.

Nomination of Examiners.

Mr. SIMPSON asked whether it was the intention of the Council to provide examination papers for examiners, and in what way it was proposed to ascertain whether examiners sought re-election, and whether gentlemen who had not filled that honourable position were desirous of doing so. He thought that very few members upon the Examining Board would care to intimate to a member of the Council that he hoped to be re-elected.

The PRESIDENT said that any member of the profession could nominate an examiner.

Veterinary-Colonel LAMBERT asked whether an examiner could nominate himself.

The PRESIDENT said that he could.

Mr. SIMPSON asked whether in nominating a candidate as examiner he was to be nominated in a special subject.

The PRESIDENT: Yes, in a special subject.

Veterinary-Colonel LAMBERT: If you nominate an examiner, must you name the subject?

The PRESIDENT: Certainly.

A vote of thanks to the President terminated the proceedings.

SPECIAL MEETING OF COUNCIL, HELD MARCH 7TH, 1893.

W. J. MULVEY, Esq., President, in the chair.

Present:—Veterinary-Colonel Lambert, C.B., Veterinary-Lieutenant-Colonel Oliphant, Veterinary-Captain Raymond, Messrs. Hunting, Wheatley, F. Wragg, Mr. Thatcher (Solicitor), and Mr. Hill (Secretary).

The SECRETARY read the notice convening the meeting.

The minutes of the special meeting of February 23rd were read and confirmed.

Read letters from Professor Walley, Messrs. J. Burnett, Mason, P. Taylor, Hartley, and J. Simpson, apologising for non-attendance.

The PRESIDENT said the business was purely formal, namely, to confirm the resolution passed at the special meeting that Bye-law 20 be altered as follows:—"That the examiners to be elected at the forthcoming election only remain in office until the four years' course comes into operation."

Mr. WRAGG moved that this alteration in the bye-law be confirmed.

Lieutenant-Colonel OLIPHANT seconded the motion, which was agreed to.

MEETING OF COUNCIL, HELD MARCH 15TH.

W. J. MULVEY, ESQ., President, in the chair.

Present:—General Sir Frederick Fitzwygram; Veterinary-Colonel Lambert, Veterinary-Colonel Oliphant, Veterinary-Captain Raymond, Messrs. J. Fraser, James F. Simpson, and F. W. Wragg; Mr. George Thatcher (solicitor), and Mr. A. W. Hill (secretary).

The PRESIDENT said that the following letter had been received from the Royal Veterinary College :—

Royal Veterinary College,
Camden Town, N.W.

"DEAR MR. HILL,—

"At a meeting of the General Purposes Committee of the Governors of this College, held on Wednesday last, it was decided to request the President and Council of the Royal College of Veterinary Surgeons to appoint representatives to meet the Committee in regard to the communication recently addressed to the Council, asking for an alteration in the date of the Summer Examinations in so far as this College was concerned.

"Although not officially authorised to do so, I think I may mention that during the present year the course of instruction at this College will, so far as regards the duration of the educational year, follow the lines laid down in the Regulations adopted in 1888, according to which the course extends from the beginning of October to the middle of May.

"The Committee, however, believe that in reverting to a Summer Session they are acting in the best interests of the students, and consequently, being most desirous of making the necessary arrangements as regards the Examinations for 1894 and subsequent years, hope that the Council of the Royal College of Veterinary Surgeons will meet them in the way suggested.

"If you will kindly submit this proposition to your Council at the earliest opportunity, you will greatly oblige

"Yours very truly,

(Signed) "RICHARD A. N. POWYS,

"A. W. HILL, Esq." "*Secretary.*

It was for the Council to decide whether representatives of the College should be appointed to meet the Governors of the Royal Veterinary College to discuss the question of whether the examinations should be altered from May to July.

Veterinary-Captain RAYMOND said he presumed that the function of the representatives would not be to settle what should be done, but to hear what the Governors of the Royal College had to say.

The PRESIDENT said the representatives would have to discuss the question generally, and report to the next Council meeting.

Mr. FRASER said he thought it would be only courteous to accede to the request of the Royal Veterinary College, and he would accordingly move—"That a Committee of this Council be elected to meet the Governors of the Royal Veterinary College, and discuss the question as to whether the date of the examination should be altered from May to July."

Mr. J. F. SIMPSON seconded the motion, which was agreed to.

On the motion of Mr. WRAGG, seconded by Veterinary-Colonel LAMBERT, a committee consisting of the President, Mr. Fraser, Mr. Simpson, Mr. Hunting, Veterinary-Lieut.-Col. Oliphant, and Veterinary-Captain Raymond was appointed; and it was resolved that the President and Secretary should arrange the date and place of meeting.

Veterinary-Captain RAYMOND said that in any arrangement that might be made, it should be remembered that the Royal College of Veterinary Surgeons was the senior body, and granted diplomas to candidates for the Royal Veterinary College. Therefore, in any matter connected with the issue of diplomas or the examinations—all things being equal—it was not for the Royal College of Veterinary Surgeons to go to the Royal Veterinary College, but *vice versâ*.

The PRESIDENT said he had no doubt, if the Committee asked the representatives of the Royal Veterinary College to meet them there, that they would do so.

Veterinary-Captain RAYMOND said it should be distinctly borne in mind that the Royal College of Veterinary Surgeons was the senior body.

General Sir FREDERICK FITZWYGRAM said he considered Captain Raymond's remarks very inappropriate, for it was well known that the Royal Veterinary College was founded long before a Charter was granted to the Royal College of Veterinary Surgeons. He did not think the Governors would in the least care where the conference took place.

Veterinary-Captain RAYMOND said he would withdraw the word "senior," and say "more important."

Veterinary-Colonel LAMBERT asked if any idea could be given when the Conference was likely to take place ?

The PRESIDENT said that, if possible, the date would be fixed for the following week.

Veterinary-Captain RAYMOND asked when the Register for 1893 was likely to appear ?

The SECRETARY said he hoped it would be ready before the end of the month.

The proceedings then terminated with a vote of thanks to the Chairman.

THE CENTRAL VETERINARY MEDICAL SOCIETY.*

THE usual monthly meeting of this Society was held on February 2nd, at the Royal College of Veterinary Surgeons. Mr. W. Roots, the president, occupied the chair.

"ANATOMY OF THE FACIAL SINUSES OF THE HORSE."

Professor MACQUEEN, who had been announced in the circular convening the meeting to give a "Demonstration, with specimens, of the Anatomy of the Facial Sinuses of the Horse," said that his first duty on that occasion was to direct their attention to the Secretary's notice, in which, he had no doubt, Mr. Rogers intended to pay him a compliment when he announced his appearance there as a demonstrator. He did not purpose giving a demonstration, nor did he intend to pay much attention to the sinuses of the head in the way of anatomical description. He should mainly concern himself with the medication of the sinuses of the horse's head. He might at once say that his appearance there that evening was due to two papers that were read some time ago. He referred to a paper read by Professor Smith about November, 1891, and to another paper read by Mr. Goodall in 1892. After reading those papers and the discussions which followed them, he came to the conclusion that they contained many statements with which he could not agree, and which to him appeared to be so astounding, so new, so surprising, that he thought they should not go unchallenged. Hence he resolved, at the first opportunity, to make a new examination of the sinuses of the horse's head. It was part of his duty in former years to describe the sinuses of the head to anatomical students, but after reading Mr. Goodall's paper in particular, he concluded that he must have been working on the wrong lines entirely. Therefore, at Christmas when he had a little leisure, he decided upon making a fresh examination. Now, anything he said that night would, he hoped, be discussed. He courted full criticism,—unflinching criticism. Let anyone who wished to express an opinion speak his mind. He had a view quite different from that of Mr. Hurndall, and that was that veterinary discussions were often too lukewarm, were lacking in candour, were too polite, too sympathetic, often far too acquiescent. The result was that the audience—and he had frequently been one of the audience assembled—sat quietly receiving a great many statements

*This report was not received until February 24th, too late for the March Journal.

with which they did not entirely agree. Everyone must have noticed that the best remarks on a paper had often been made after the meeting was over. Hence he invited full discussion, and he wished his audience to note anything with which they did not agree, so that they would be able to check it at the moment, because he thought there were certain peculiarities in connection with the sinuses of the horse's head that should be settled, and that they should agree in their statements of facts.

First he must ask their indulgence whilst he referred to what the authorities said. They would have observed that both Professor Smith and Mr. Goodall were not satisfied with their anatomical text books, nor were they apparently even satisfied with the teaching, which to him was not a new thing. He desired to remind them that the first description of the turbinated bones and facial sinuses of the horse was given—so far as he had been able to discover—in 1724, by a French surgeon, Dr. Morand, Medical Press Censor to Louis XV.

The celebrated Bourgelat—having deserted the profession of the law for that of cavalry officer and riding master—in 1749-53 issued a three volume work entitled "*Elémens d'Hippiatrique.*" This book appeared some ten years before the foundation of the first Veterinary School or before the systematic study of veterinary science. Bourgelat's second volume contained an exhaustive description of the nasal chambers and their functions. The author recognised five sinuses, and named them Frontal, Sphenoid, Ethmoid, Zygomatic, and Maxillary. He noted that the frontal was absent and the maxillary rudimentary in the fœtus, and that the sinuses increased with age. He stated how the sinuses were formed, where to reach the depths, and referred to peculiarities of the sinuses of the human skull discovered by Highmore, Spigelius and Morgagni. He asserted that similar peculiarities occurred in animals; that the limits of these cavities were never perfectly constant, and that the maxillary septum might be absent. Bourgelat described the false nostril, the turbinals, their cavities and septa, and five muscles concerned in dilating the nostril. In referring to the false nostril he mentioned that he had seen many farriers inject and push indifferently drugs into this pouch without effect, because they never reached the proper fossa. Next followed a careful and minute description of the pituitary membrane, its disposition, character, thickness, softness, its crypts, follicles, and glands; its innumerable arterial, venous and serous vessels. Bourgelat noted the correspondence of the sinuses one with another, and their communication with the nasal chamber: that the nasal secretion was not very abundant in health, that it was aqueous, subtile, fell drop by drop, its escape not being manifest until after work or exercise, and that in relaxed conditions it became copious. He entered into full detail regarding the uses of the nasal secretion, its influence on olfaction and its action on odoriferous air. He treated of the functions of the sinuses, the nostrils—true and false—and of the turbinated bones

Blaine—whose work on "Horses and Dogs" appeared about 1817—in his "Veterinary Art," edition 1865, said:—"Immediately above arch of the palate, which is situated inferiorly, the nose communicates with the frontal sinuses by a species of flap or valve, through which a probe can be easily thrust, but which must admit but little air into the sinuses."

Percivall's "Anatomy"—edition 1858, said:—"Maxillary sinus; superiorly the sinus is open, being there continuous with the frontal; the boundary line is marked by a suture, etc. . . . and by the prominent crest formed by the junction of the superior turbinated with the Ethmoid bone: underneath which part—through a curved (and in the recent subject, sort of valvular) fissure, the sinus opens into the middle meatus between the bases of the turbinated bones."

Gamgee and Law's "Anatomy of the Domestic Animals," 1861, contained

the following:—"The anterior (sinus) opens separately into the middle meatus by the anterior part of the common aperture."

Varnell, in the *Veterinarian* for 1867, gave this description:—"The sinuses of the head are air cavities which communicate freely with each other and by a small opening with the nasal passage. This opening is situated at the supero-posterior part of the middle, meatus and is guarded by an imperfect valve which, when pressed upon from within, either partially or wholly closes the opening. This communication may be also closed by the mucous membrane being thickened by disease."

Chauveau's Comparative Anatomy (Fleming's translation, 1873) contained an excellent description of the facial sinuses, from which Professor Macqueen quoted the following:—"Frontal sinus communicates with the superior cavity of Ethmoid turbinated. Septum between frontal sinuses always imperforate. Superior maxillary sinus, largest of all, divided into two compartments by maxillo-dental canal. Internal compartment, a shallow cavity continuous with sphenoidal sinus and also by narrow slit with Ethmoid sinus. External compartment is separated from inferior maxillary sinus by a partition which Goubaux demonstrated to be imperforate at all periods of life, though he has sometimes found it so thin as to consist only of two mucous layers placed back to back. Sphenoidal sinus formed by sphenoid and palate bones. Has many incomplete septa. The middle or antero-posterior septum is always perforated." (Here Professor Macqueen remarked that this perforation of the sphenoidal or septum might give passage to pus from one maxillary sinus to the other. If this complication did not occur frequently, it was probably due lo the condition of the pus, the solids having settled to the bottom and so blocked the orifice).

"Ethmoid sinus: a large cell in communication with the internal compartment of superior maxillary sinus.

"Inferior maxillary sinus; remarkable because it does not communicate with the others; separated from superior sinus by imperforate plate; divided into external and internal compartments by superior dental canal. Internal compartment prolonged into superior cavity of maxillary turbinated bone. External, smaller, showing roots of fourth, rarely those of third molar tooth.

"The first four sinuses communicate; the last is usually perfectly isolated. As to the common opening—this orifice is ordinarily narrow and curved, but we have seen it sometimes converted into a foramen sufficiently wide to permit the introduction of a finger. All the sinuses of one side communicate with the corresponding nasal fossa by the curved slit which has been observed at the bottom of the middle meatus. This slit penetrates the superior maxillary sinus under the septum that separates it from the frontal sinus; it also enters the inferior maxillary sinus which thus communicate solely with the nasal cavity; while the other diverticuli open in common into this cavity through the medium of the superior maxillary sinus."

Strangeway's Anatomy, edited by Vaughan, 1886, in referring to sinuses, said:—"Each nasal chamber communicates with the four distinct sinuses." "The anterior cavity, often called the inferior maxillary sinus, is generally isolated from the rest."

McFadyean's "Osteology" and "Anatomy of the Horse" might also be consulted. This author alluded to the common opening as:—"A curved slit not visible from the nasal fossa . . . . through which a flexible probe may be pushed."

The last authority he (Professor Macqueen) would quote was Professor Williams, who in his "Veterinary Surgery" 1890, said:—"Facio-cranial sinuses may very reasonably be looked upon as one cavity divided into frontal, maxillary, and sphenoidal compartments. They form air cavities and communicate

with the nasal passages by a small passage guarded by an imperfect valve. In addition to the above divisions, each compartment is divided into smaller cavities by thin osseous plates, the whole being lined by a continuation of the Schneiderian membrane, which is neither so vascular nor so thick as in the nasal passages."

Professor Macqueen then observed that, having regard to the authorities he had quoted, he did not think anyone could say that some attention had not been paid by so-called "authorities" to the sinuses of the head. Indeed, he did not think they had much to learn concerning this subject, nor that they could find a better description than that given by Bourgelat before the foundation of the first veterinary school. He did not believe that there was any better description of the sinuses of the horse than that of Chauveau. Perhaps, however, the translation was not quite so good as the original of the last edition. Coming now to what he proposed to show, he wished, first of all, to allude to one or two statements made by Mr. Goodall. Passing over Mr. Goodall's remarks as to the defects of the standard works and of the school curriculum, and his advice to veterinary surgeons to renew their acquaintance with surgical anatomy, Mr. Macqueen came to his (Mr. Goodall's) statement with regard to the Eustachian orifice being narrow. That was the first point to which he (Mr. Macqueen) positively objected. Another statement of Mr. Goodall's was "that there was no trace of a shred of a doubt that in the treatment of diseases of these sinuses by nasal insufflation the medicinal agent readily gains an entrance from the nasal chamber to the sinuses." Now, he (Mr. Macqueen) maintained the very opposite of this. He held that there were mountains of doubt and insuperable difficulty as to getting anything into the sinuses at all. Then Mr. Goodall again expressed his opinion of reference books and their inadequacy, but this Mr. Macqueen said he would pass by. Mr. Goodall referred to the anterior maxillary sinus, when it was formed, and made a very peculiar statement. This was the passage, "It is asserted by most anatomists that this sinus is not formed until maturity, though M. Goubaux has shown a head, with the sinus at six months old." Then Mr. Goodall exhibited a head or two and went on to say: "Before leaving this part of the subject I have a most interesting fact to point out to you, viz., that by a careful examination of the condition of these sinuses it would be possible for an expert to tell whether or not a young animal had breathed, independently of an inspection of the lung; for these sinuses are not inflated before the first act of respiration." Mr. Goodall contradicted himself. He first asserted the existence of the sinus in a 240 days' fœtus, and then told his audience that the sinus was not inflated before the first act of respiration. Next, Mr. Goodall referred to the common opening, and he maintained that it dilated and contracted. As to this he (Mr. Macqueen) should have something to say. Mr. Goodall, in his paper, further alluded to olfaction and the Schneiderian membrane, which he spoke of as being erectile in some places. That, he (Mr. Macqueen) would have occasion to notice. Mr. Goodall concluded by saying it was easy to inject the natural orifice. His words were: "If, as we know from experience, there is any difficulty in establishing a drainage from the sinuses into the nasal chambers—the canal closing from any cause—what more simple than first to try a syringe with a curved nozzle, which should be introduced under this plate into the natural orifice, to effect a passage by forcing a stream of water into the proper channel." Well, it was necessary also to allude to Prof. Smith, who read a paper on the subject of nasal gleet. That gentleman evidently chuckled over the defective elementary anatomical knowledge of students, but was very quickly brought to book in respect of his own knowledge by Mr. Goodall. So Prof. Smith's was only a short-lived hilarity; but very likely he (Mr. Macqueen) would be found to support Prof. Smith to a very large extent.

Mr. Macqueen then proceeded to exhibit and explain a large number of specimens in refutation of the theories advanced by Mr. Goodall. The first specimen he showed was a longitudinal section of a horse's head, including a portion of the first three vertebræ. The first point to which he objected in Mr. Goodall's paper was, he said, as to the size of the opening of the Eustachian opening. Now, in the specimen then submitted it would be found that that opening, instead of being narrow, was large enough to admit the extremities of two or three fingers. The next specimen he exhibited showed the posterior half of the frontal sinus and how far back it extended; the specimen showed the anterior limit of the sinus under the nasal bone, and the anterior or superior boundary of the posterior maxillary sinus. Another specimen Mr. Macqueen exhibited showed, he said, the average size of the orifice by which the sinus communicated with the nasal chamber. He had inserted a feather in the orifice, but in another specimen no feather or probe was needed because the opening was so large. Another specimen, he pointed out, might be regarded as abnormal, as the opening in it was large enough to admit the points of three fingers. This occurred in a horse of considerable age. Another specimen exhibited the orifice leading to the posterior maxillary sinus, while the opposite section of the head (also shown) displayed the opening into the anterior maxillary sinus.

He would presently call their attention to the common orifice by reading some statistics he had prepared, based upon an examination of skulls. In the majority of cases he found the slit no wider than would admit of the insertion of an ordinary table knife blade flat-wise. He pointed to an average opening in one specimen on the table, saying that the feather in it indicated where the knife blade would pass. Immediately in front and a little more to the outside they came upon the opening by which the anterior maxillary sinus communicated with the meatus. In order to show that orifice it was necessary to open into the posterior cavity of the inferior turbinated bone. Having opened that cavity they were able to see a small loose membrane covering the incurved edge of the inferior turbinated bone. That was the "valve." It was formed in this way:—the inferior or maxillary turbinated bone in describing its convolution, lay for part of its course, in contact with the inner face of the superior maxillary bone. Between the surfaces thus opposed a narrow chink or space was left through which a probe or feather could be passed until the interior of the sinus was reached. The two surfaces of the turbinated bone were lined by pituitory membrane. In some cases this membrane was larger than the bone; and in consequence the part at the free or incurved edge of the turbinal formed a fold, more or less loose, beneath which the probe passed in entering the sinus. The so-called "valve" was neither more nor less than the incurved edge of the inferior turbinated bone, and that portion only of the edge that was free that was in contact with—yet unattached to the superior maxillary bone. Behind this region—behind this "valve" they would notice in a section, which he sent round, the curved slit which led into the superior or posterior maxillary sinus. Viewed from behind, this opening was seen immediately above the posterior or blind extremity of the inferior turbinal. Next as to the anterior boundary or limit of the anterior maxillary sinus. That had some practical bearing. In most cases in which they wanted to establish drainage it was advisable to open as low down as possible or as far forward as possible—according to the position of the head. The point was the inferior or anterior boundary of the anterior sinus. This, in many cases, terminated at the extremity of the maxillary spine; but in an equal number of cases the boundary was considerably farther forward—as far as the opening of the infra-orbital foramen, so that in order to effect perfect drainage of this sinus it was necessary to trephine over a tooth.

Then as to the position of the septum between the anterior and posterior sinus, he did not think much importance need be attached to the position of the septum. It was sometimes described as being between the fourth and fifth molar teeth, and, when he came to refer to figures, he should be able to tell them in how many cases he had found it between the fourth and fifth and how many times he found it between the fifth and sixth. He had discovered the septum immediately over the fifth, and between the fourth and fifth, and in one or two instances he had found it over the root of the fourth tooth. In some cases that septum passed transversely, while in others it described an obliquity which was well marked. Lastly, this septum might be absent. He had found it altogether absent on one side and imperfectly present on the other. He had found it imperfect on both sides, that was to say there was a circular opening, a perforation, so that there was communication, over a certain obstacle of course, between the posterior sinus and the anterior. He had found it with a simple foramen, and, in one casein 53, he found this partition reduced to membrane, merely two mucous membranes placed back to back, which could be moved to and fro.

He now came to a point more important to veterinarians, and that was how to medicate the sinuses. He did not propose to touch the function of olfaction—that would take up too much time. He passed over the Schneiderian membrane; there was really nothing in it; he objected, however, to its being called "erectile tissue." Gamgee was the first to allude to the membrane as being erectile. No doubt he (Gamgee) obtained his information in France, when he studied contemporaneously with Chauveau, but Chauveau did not describe the membrane as being erectile tissue: he described it as "somewhat like erectile tissue" but then only after having described the vascular supply of the membrane. He described how there were from three to five layers of valveless veins in the membrane, and after explaining how they communicated one with another, he stated that this plexiform arrangement imparted to this membrane in certain places the appearance of erectile tissue, but it was not erectile or constructed of erectile tissue.

With regard to the name ozœna, he was surprised to find from the debates that this always referred to a discharge which had some portion of its seat in the nasal sinuses—in the sinuses of the head. Ozœna, he considered, was any chronic foul-smelling discharge from the nose. Perhaps it was serous, but it was of no consequence whether the lining of the sinuses was involved or not. If the discharge was a stinking discharge it constituted the disease known as "ozœna." In France an individual suffering from this disease was known as a *punais*, the smell of the individual resembling somewhat the smell of a crushed bed-bug, a bug being in French *punaise*. Ozœna might be due to disease of the nasal lining; of the turbinated bones; of the sinuses: or all three.

Proceeding to the subject of medication, he desired to say something as to the course of the air. Many years ago Colin, the French physiologist, performed some experiments to prove what part the nasal chambers played in the function of respiration: whether the sinuses had any important participation in that function or not, and he referred to the operation of trephining. If they noticed when they opened the frontal or maxillary sinus they would see air escape during each expiration—he said expiration and not inspiration—during each expiration there was an escape of air from the opening; during inspiration there was no escape of air, and Colin experimentally proved this in a healthy horse where there was no pus in the sinus whatever. He trepanned the frontal sinus of the ox and the frontal sinus of the horse, and he carefully removed the disc of bone, leaving the periosteum or lining perfectly intact; when the horse or the ox breathed, it was noticed that during inspiration the membrane, left intact, became depressed from the inspiratory movement, while

the expiratory movement caused a slight elevation of the membrane. He (Prof. Macqueen) had repeated that experiment in one or two cases. He carefully removed the disc of bone. In the specimen which he showed they would see the trepan-opening with the membrane partly ruptured, but at the time he performed the experiment the membrane was intact. In case of any hurt to sentiment the experiment was conducted on a dead animal and, in order to imitate inspiratory and expiratory movement he used a foot-bellows. He took particular care to place the nozzle first in the lower meatus, and then in the middle meatus; and on each occasion of the down stroke of the bellows, there was a depression of the membrane. The moment the foot was taken off the bellows the membrane was relaxed or slightly raised. An objection might be raised that this was not the natural condition of the head, and that he was simply producing a change which might not exist in the living animal. Well, suppose they removed this piece of membrane, the sinus would be open and atmospheric air could enter or leave. Then if they brought towards the opening a piece of cotton wool they would notice that, during inspiration the wool would be drawn into the sinus while during expiration the wool would move slightly outwards. Moreover, these experiments showed that during inspiration the sinuses were not filled with air, it was the wrong time for this. During the inspiratory movement, all that happened was a movement in the column of air that filled the nasal cavities and their diverticuli, and by the respiratory passage that column of air was drawn towards the depth of the respiratory track, trachea, lungs, and so on. It was quite possible that, owing to the reduction of pressure, some of the air in the sinuses passed back to the depth of the respiratory track. These experiments tended to prove that during inspiration the tension of air in the sinuses of the head was diminished and it naturally passed along the line of least resistance towards the lungs and trachea, and though the sinuses were filled with air from time to time—they were filled most likely during expiration.

Mr. Goodall had gained a position which should render his name immortal. When he (Mr. Macqueen) read that gentleman's paper first, he had just been reading in the Bible about Saul, and it struck him that Mr. Goodall resembled Saul. Saul was sent out to seek his father's asses and he was made a king. Having regard to the second part of the discussion on Mr. Goodall's paper no one could doubt that Mr. Goodall had been installed a veterinary king—how deservedly, he (Mr. Macqueen) would not say. But it was related that the Almighty repented of his choice. Mr. Goodall was quite positive that in future there need not be "the trace of a shred of a doubt" that, in the treatment of diseases of these sinuses by nasal insufflation the medicinal agent readily gains an entrance from the nasal chamber to the sinuses. Well, he (Mr. Macqueen) had tried insufflation. He tried a German insufflator (which he showed). He had filled the bottle produced with turmeric; had used the ordinary apparatus, the straight tube, and took care to follow the directions of Mr. Goodall in regard to the middle meatus. He injected powder once or twice, sufficient to enter the sinuses. The horse was killed, its head was opened, he took the roof off, and there was no sign or trace of powder in any part of any sinus. He found that the powder had reached the common opening—the curved slit, but no further. Not in one horse, but in twenty, had he used the powder internally as Mr. Goodall directed, and Prof. Shave had doubtless tried other horses in a like manner, but in no case was powder found in the sinuses when examination was made. Nor, had he (Mr. Macqueen) only used the little bellows which he produced. He had used another (which he also produced) which, he said, gave a constant force and sent the powder two feet from the nozzle in a continuous shower, so that the failure of the experiment was not due to the want of force behind. He employed a foot bellows kindly provided by Prof. McFadyean, and by means

of this bellows—giving a considerable amount of power—he insufflated a living horse and also a dead horse, but in no case had he succeeded in an experiment which Mr. Goodall said was so "simple, easy and sure." Insufflation was, he admitted, an excellent means of medicating the nasal chamber, but he denied that it was any use in medicating the sinuses of the horse's head.

The next instrument he tried was an invention forty years old, of Professor Rey, of Lyons. He had used a similar instrument frequently in Scotland. It was known as Rey's syphon-tube. By atmospheric pressure, fluid poured into Rey's tube passed up one nasal chamber, over the septum, and down the other. Both nasal chambers could be washed most effectually by Rey's tube. It was an excellent means of irrigating the nasal chambers, but he had tried with it to get fluid into the sinuses of a living and of a dead horse and had completely failed in both cases. Then they came to the last form of medication, the ordinary enema syringe. He had, through the kindness of Professor McFadyean, been able to treat one or two horses in this way, and he used a solution of gentain-violet so that there might be no chance of failing to discover the staining of the lining. It was injected first up one nostril, then the other. Nothing, however, could be got into the sinuses by means of this syringe save when he turned the head of a horse, which had been dead 24 hours, on its side. The moment he turned it on its side and injected the lower nostril he found that some of the liquid would pass into the sinus, but the quantity was extremely small, not nearly so much as one would anticipate, considering that there was no hurry. While partial success was achieved in this way they must remember that this was not a form of medication that could be recommended to veterinarians. No one could afford to cast a horse every day in order to wash out the sinuses. Besides the operation of using an enema syringe on a horse's head in that fashion was highly dangerous. There would be a great risk of choking the horse.

Now, he had arrived at something which he might say belonged to the other side. He had no personal object to serve in describing what he had found. He wanted simply to get at the truth, and he did not want wrong impressions to go abroad. He wished to tell them what happened when he tried another case. Through the kindness of a horse slaughterer, he took a syringe and an injection of gentain-violet to a horse which was killed, and immediately after it was dead he forced the solution into the lower nostril, and also, after turning the head, into the other nostril. When the roof of the sinuses was taken off the effect of the injection in a dead subject was ascertained. (Here Mr. Macqueen exhibited the specimen). There was the section of the head to which he referred in which they would see that the injection not only stained one sinus or portion of a sinus, but the lining throughout. Every nook and cranny of the sinuses were stained. This showed that there was a possibility of putting liquid into a horse's sinuses after it was dead. It was suggested that he should procure the head of a colliery pony, that if dust could penetrate the nasal sinuses, the sinus lining would show it. Well, he obtained two heads of pit ponies, one from Mr. Woods, of Wigan. The pony to which it belonged had worked in a pit at least two years and no part of any of the sinuses contained the slightest trace of carbon or of coal dust. In the second specimen, which came from Bishop Auckland, the like result followed investigation.

Mr. Macqueen then read:—

Analysis of Examination of 53 *Heads.*

Size of common Opening—Small in 39 } Skulls.
Large in 11 }

Position of Maxillary Septum—

Between 5th and 6th molars in 16.
Between 4th and 5th do. in 8.
Over roots of 5th do. in 12.
Over roots of 6th do. in 10.

Absence or other peculiarity of Maxillary Septum—

Absent on one side in 1 skull.
Absent on both sides in 1 skull.
Imperfect on both sides in 1 skull.
Pierced by a foramen only in 3 skulls.
Reduced to a double mucous septum in 1 skull.

Position of anterior limit of anterior (or inferior) Maxillary Sinus—

At free extremity of maxillary spine in 23 skulls.
In front of the extremity or level with the infra orbital foramen—sometimes over two inches in advance of maxillary spine. } in 25 skulls.

Number examined 53. Ages 1-2 years old; 2 rising 5; 5-6 yrs.; 2-7 yrs.; 5-8 yrs.; 3-9 yrs.; 4-10 yrs.; 2-12 yrs.; 6 between 14 and 16 yrs.; 11 more than 16 but less than 20 yrs; 2 not less than 25 yrs. The rest over 20 yrs., doubtful or omitted.

Well, these were the statistics he had noted regarding the skulls he had examined. He had examined these skulls and had brought them the specimens he had exhibited. The latter were not well prepared, they were not clean, they were not intended for a museum. Hence no gentleman need propose that they should be handed over to a museum. They were prepared hurriedly, there was not much time to lose. They were intended simply to show the extent of the sinuses, the character of the common opening; and to a less extent, they were intended to show the so-called "valve opening." That valve was a difficult opening to show because of its peculiar position; but his main object was to satisfy himself and those who cared to listen to him, that it was simply impossible to insufflate or to irrigate the sinuses; and that with an enema syringe liquid could only be got into a horse's sinus when the horse's head was placed on one side. As to the false nostril, he would only say that that nostril was not peculiar to the horse. On the authority of Prof. Flower, of the British Museum, he could say that the false nostril was found in the tapir, in the rhinoceros, and possibly in a good many other animals. He (Mr. Macqueen) regarded the false nostril as something simply to limit the volume of the inspiratory wave. Mr. Goodall made much of a certain appendix very near the false nostril to which he (Mr. Macqueen) desired to direct attention. He reminded them that the sinuses were not filled with air during inspiration but during expiration, and that the "boat-shaped" cavity was simply a trap to prevent the too rapid exit of the expiratory wave. That was the true function of the appendix in question. When they came to points of physiology, a man could draw any interpretation or inference he liked. The physiologist was a romancer, but the anatomist was not. They were all under the impression that the false nostril was a pouch from four to six inches in length terminated by a blind extremity. That was so up to a certain extent, but if they examined this nostril on the inner wall they would perceive a slit on the inner wall three quarters of its length. He had taken up quite sufficient of their time. He hoped that they would dispute these facts and discuss the thing with any amount of vigour. All he claimed was the opportunity to reply.

Discussion.

Mr. GOODALL said it was rather difficult to follow so lengthy and learned a discourse as Professor Macqueen's with a view of answering it in detail until the paper had been seen in print. He attended that meeting without the least preparation. With respect to the quotations from authorities given by Professor Macqueen some of them were new to him; certainly the anatomy of these parts was not taught to him at College, and if it was taught now he congratulated the profession upon having better advantages than he had possessed in his day. Neither had he the chance which Professor Macqueen had of getitng a large number of heads together, or in going to a knacker's yard. His was simply a country practice and his preparations made in odd five minutes. But he said this: they learned more by going to nature than by studying books. Books were well enough no doubt, but when they had the opportunity let them go to nature herself as he had done. He never forgot what he had learned from nature. In his reading of comparative anatomy he had come across no account of an orifice connecting the anterior sinus with the others. About the opening of the Eustachian canal it was submitted to them it was a comparatively large opening. He however maintained that it was a narrow opening, and in most specimens, almost as narrow as the openings into the sinuses. Whilst talking about the common opening he asked whether it would not be well for them to give it some kind of name, and suggested "nasalo-maxillary canal." Then as to the so-called "valve," Professor Macqueen simply said what he (Mr. Goodall) had told them before, namely that it was formed by the posterior extremity of the anterior maxillary turbinated bone, that it was free, and that it acted. The thing was a valve, and not merely "so-called." It closed hard against the maxillary bone when shut, (specimen shown) and when opened allowed the air to pass through. His only contention was, it opened and closed, and regulated the passage of air from the nasal chambers into the sinuses. That seemed very simple and he thought that they would see it.

Professor MACQUEEN: I would mention one little point, namely, that the so-called valve which in the living animal is hard and unyielding, is soft in the dead subject, so that any conclusion or inference derived from the dead subject is misleading. In the old horse it is bone, and unless by disturbing this attachment you cannot put a probe into the sinus.

Mr. GOODALL: By that argument you say the opening to the anterior sinus is always closed. I say that that is impossible, for then there would be a large cavity vacuous. If this be a hard and unyielding substance it cannot open and close, and the opening to the anterior sinus would then be either hermetically sealed, or always open. About the size of the opening; I have specimens where the opening will just admit of the insertion of a table knife blade flatwise, but as I had previously pointed out and as Mr. Macqueen has shown by his statistics, there are heads in which the opening is much larger. Here is an opening large enough to admit of the insertion of two fingers. This disease (ozœna) is no common disease; you don't get it every day. It is a very unusual or uncommon disease.

Professor MACQUEEN: So is the opening.

Mr. GOODALL: Yes, this is the important point. You emphasise my point. Suppose a horse with such large openings as this is choked, what is to prevent ingesta going through that opening into the sinus? There is a large enough opening to go through. In a choking horse it is not a question of inspiration and expirations, it is a violent struggle for air, and what is to prevent ingesta going in there? *I have found food in the sinuses*, and one fact goes for more than theory or experiment. *In one head I found ingesta there.* Referring to Prof. Macqueen's injection experiments, they were all made on the heads of

healthy horses with small openings to the sinuses—but with a large opening, which is shown to be not unusual, his results would probably have been different. I do not know whether Prof. Macqueen took notice of the age of his horses in observing and noting the position of the partition and boundaries of the sinuses.

Professor MACQUEEN: I did.

Mr. GOODALL: That makes it more valuable, because in the heads I have opened in the case of young horses, seven or eight years old, I have found in the sinuses these teeth.

Professor MACQUEEN (exhibiting specimens): These are the teeth in the largest opening.

Mr. GOODALL:—I am talking now about the position of these partitions. Here is the valve shown very clearly in this head. (Specimen exhibited). Now here is the partition shewn in this (exhibit). Mr. Goodall said he had no desire or ambition to become a Saul. His only aim was to get at the truth. He maintained that the older a horse became the more forward those teeth got into the anterior sinuses. He perfectly agreed with Professor Macqueen that the opening which they had been accustomed to make to drain those sinuses was too far back. If they took it just above the anterior edge of the zygoma it would be the correct place. Speaking of the functions of the sinuses, he went on to say that they must go sometimes to the great book of natural history in their investigations. They made a mistake in sticking to one animal like the horse. Let them go, he said, to the great book of natural history and see how these functions were performed in other animals. When the partition between the anterior and superior sinuses was not perfect it was an abnormality, because the functions of the maxillary and ethmoidal turbinated bones were different. One was preparatory and the other olfactory. He had brought with him the heads of a fox, of a hound, and of a weazel. In these animals, in which the senses of olfaction was most highly developed, the maxillary turbinated bone was immensely convoluted. It moistened and rarefied the air. When they got those two cavities connected it must be an abnormality. As to erectile tissue forming part of the lining membrane of the nose, if it were not erectile tissue then he did not know the meaning of words or of facts; he might tell Prof. Macqueen that it was regarded as erectile tissue in man.

The tapir, which was supposed to be the original representative of the horse in ages gone by, had a very large false nostril. It was one of the peculiarities of perissodactylate mammals, though its analogue was seen even in the dog. He was delighted to find that his paper had been deemed worthy of the criticisms passed upon it.

Professor SMITH said that he had done little anatomical work, but the point he endeavoured to emphasise in the paper he read eighteen months ago was the important clinical fact of the futility of endeavouring to treat this disease by the injection of material into the nostril, and that expression of opinion had, he thought, been very strongly supported by the results of the experiments made by Professor Macqueen. In his address, however, Professor Macqueen had alluded to some disparaging remarks said to have been made by him (Prof. Smith) respecting the existing anatomical text books. He was not aware that he claimed to have discovered any anatomical points, nor that he had criticised any anatomical works in connection with the subject of ozœna. They had had clearly demonstrated that evening the position of the opening and the way in which that opening would vary in size. He did not think that any ordinary practitioner could have brought them so many specimens as Professor Macqueen had done. In no other place than a school could Professor Macqueen have made such exhaustive examinations. Assuming for the sake of argument that a certain amount of material passed

into the sinus by means of the insufflator or when injected up the nostril, he asked how that small amount of material could be of the slightest use in dealing with such large and intricate cavities as the facial sinuses. The model now exhibited is a wax cast of the sinuses—in this form they can be handled and seen—and it is impossible to believe when looking at this specimen that a few grains of powder or some drops of fluid trickling into these cavities can be of the slightest use over its vast surface. He maintained that his great point had been amply supported by the facts which Professor Macqueen had adduced.

On the motion of Mr. BARRETT, seconded by Mr. CATON, the discussion was adjourned.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE thirty-first Annual Meeting and dinner of this Association was held at the Grand Hotel, Manchester, on 24th February. Mr. W. A. TAYLOR, President, occupied the chair.

There were thirty-six members and friends present, among whom were included Professor Williams, Dr. Bury, Dr. Wild, Dr. Kelynack, Dr. Wood, Dr. Fairclough, Dr. Jackson, Captain Meredith, Mr. Ferguson, Mr. Thomas Greaves, Mr. Councillor Locke, Mr. Alexander Lawson, Mr. W. Dacre, Mr. E. Faulkner, Mr. William Woods, Mr. J. B. Wolstenholme, Mr. Jones, and Mr. Chorlton.

The letters of apology for non-attendance were announced and placed upon the table.

The undernoted gentlemen were elected members of the Association:—Mr. Llewellyn Crook, M.R.C.V.S., Manchester; Mr. John Norbury, M.R.C.V.S., Macclesfield; Mr. Edward Nelson, M.R.C.V.S., Hyde.

Mr. Frank Barnett, of Bowness, Windermere, was nominated as a member of the Association.

Consideration of Forthcoming Election of Members of Council and Election of a Committee.

The PRESIDENT, in touching upon this question, said:—It will be well-known to you all that, as a result of the charter recently obtained, that the Vice-Presidents of the Royal College of Veterinary Surgeons will have to be elected from the body of so-called Councilmen. That being so, the next election taking place, I presume, under the terms of the new charter, in June instead of May, it will necessitate a larger number of men to be elected on the Council board. I now take this opportunity, at the request of my father, to thank the members of this Association for the confidence they have reposed in him during the sixteen years it has been his honour and privilege to represent Lancashire on the Council of the Royal College of Veterinary Surgeons. I am therefore desired by him to state that, in consequence of medical opinion, he will be no longer able to fulfil the duties of Councilman, even if you, gentlemen, chose to put him forward as a candidate once more. I have to return his warmest thanks for the kindness shown him, and to acquaint you with the fact, which is absolutely decided upon, that he will not be able to stand as a candidate again. There was a time when we had three members of the Council who were Lancashire men; one or two vice-presidents were also Lancashire men. At the termination of this year there will not be one Lancashire man as a representative of us on the Council board, unless we proceed to do our best to place some new men on the Council. Inasmuch as there will be such a number of vacancies, I think it would be well for this society to nominate, through their chief officer, at least three candidates; and if I may

without partiality, and I do not think anyone will charge me with that, ask the gentlemen present to support an honorary member of our Association, a gentleman who, through holding with English pluck and determination to his opinions, was, on the last occasion, prevented from accepting the position of member of Council of the Royal College of Veterinary Surgeons. The gentleman I allude to is Professor Williams. I feel it a peculiar honour and pleasure to ask the members of the Lancashire Veterinary Medical Association to make him one of the nominees at the forthcoming election. I can assure him, and so can all the members, that every effort shall be put forward to place him once more in the honourable list of members of Council of the R.C.V.S. I leave it with you to nominate two other candidates for Council, and shall be glad if someone will kindly second my proposition.

Mr. LOCKE said he had very great pleasure in seconding the President's proposition.

Professor WILLIAMS said he had certainly been on strike, that he should strike no longer, but do his utmost consistent with his opinions. He felt it a very great honour that the members should propose him as a representative of the Lancashire Veterinary Medical Association, the oldest English Veterinary Society. Though he should do his best, at the same time he thought he would be a very small minority.

Mr. WOODS said he had great pleasure in proposing two members of this Association as nominees as candidates for the Council, viz., Mr. Alexander Lawson and Mr. E. Faulkner.

Mr. FAULKNER, of Sheffield, seconded the proposition, adding that he had no doubt whatever about the interests of the Association being upheld by the two gentlemen named. (Carried unanimously.)

Mr. LAWSON remarked that he was exceedingly obliged for the selection the members had made of him. His ideas of Council matters were pretty well known, and he would have great pleasure in doing all he could for the members in Lancashire.

Mr. FAULKNER thanked the members very much for the great mark of their esteem in having chosen him to be one of the representatives of this Association and the profession in Lancashire. He esteemed it a high honour and privilege to be called upon to do something for the profession at the Board of the Royal College of Veterinary Surgeons. Personally, he had no particular desire in this direction; but as it was the members' wish, he was perfectly willing and should do his best to represent them faithfully. He could not hold himself as going simply as a delegate, and he felt certain that the members did not wish it. In thanking them for their choice he stated that he would endeavour to do his duty.

It was resolved that the office-bearers form an Election Committee, with power to add to their number.

It was resolved that the next Quarterly Meeting be held on the last Thursday in March, 1893, as the ordinary date followed too closely after the present meeting.

It was proposed by Mr. A. LAWSON, and seconded by Mr. Thomas GREAVES that a vote of thanks be tendered to Mr. Peter Taylor for his long service as a representative of this Association in the Council.

Mr. HENRY THOMPSON, of Aspatria, showed an interesting specimen of Intussusception; and Professor WILLIAMS exhibited, under the microscope, sections from the spinal cord of a horse which, in life, had been a bad "shiverer."

It was resolved that a letter of condolence be sent to the widow of the late Mr. Thomas Briggs.

The President's Inaugural Address.

In the President's opening remarks he alluded to the fact that this was the fifth occasion in which the members had honoured him by choosing him as their President. He went on to refer to the fact that the annual meeting of the National Veterinary Association would take place this year in Manchester, and that our fellow townsman, Mr. E. Faulkner, was President of the same, and that he hoped the members would do their utmost to sustain the credit of Manchester by their attendance, and by furthering in every possible direction the interests of that Society. The meeting would be held at the close of July or commencement of August. He then went on to say:—

Comparative pathology of recent years has engaged itself chiefly and prominently by the consideration of those diseases which are communicable from animals to man, and the diseases which seem to have come to the fore-front of the discussion have been those of tuberculosis, glanders, farcy and rabies. Legislation has been effected with regard to rabies which I think on the whole has met with the approval of the members of our profession. It has not of course gone so far, nor has it been so rigorously carried out, as we as veterinary surgeons desiring to see the disease completely stamped out could have desired, but I feel certain that after a careful perusal of the statistics of the numbers of cases of rabies that have occurred since the legislation was insisted upon by the authorities, that these cases have decreased considerably in number. With regard to the great subject of tuberculosis and its analogue in man, much has been written and said and there is, as we know at the present time, a Royal Commission sitting upon this subject, and I hope that that Royal Commission will not, like certain other Royal Commissions, have an abortive result. It is to be hoped that the results of their labours may be so placed before Government as to show them the necessity for more stringent legislation with regard to the slaughter of animals suffering from tuberculosis, and with regard to the inspection of their flesh and viscera after death. Though I am one, I must confess, of those who believe that, were we to accept all the statements which have been made as to the communicability of this disease from animals to man, that the latter, at any rate so far as the British Isles are concerned, would be nearly swept away. Fortunately for us as human beings we possibly possess the power of withstanding the onslaughts of the bacilli of tuberculosis. There is also another Special Commission on which I am glad to see the names of Professor Brown and Mr. Clement Stevenson, M.R.C.V.S., of Newcastle-on-Tyne sitting. That Commission has for its special consideration the question of the suppression and extirpation of a disease which, personally, I look upon as one which inflicts great loss upon the community, and that disease is swine fever. I feel sure that more stringent legislation with regard to its prevention is necessary. We all know that the Board of Agriculture are very fond, if I may so term it, of issuing orders, but unfortunately regarded from our standpoint as preventers of disease, those orders are not made compulsory. It is left with the local authorities to decide as to whether or not they shall place those orders in execution. Now this lamentable condition is well exemplified in the matter of glanders recorded as occurring in the largest city of the world. The County Council in London has refused to avail itself of the opportunity thus afforded to decrease, if not entirely stamp out, the disease in the metropolis. Whether it has been so from ignorance of the dire results of glanders or whether it has been so from financial reasons I am unable to tell you, but I am sorry to say that the city which should be an example to other cities, refuses to budge from the former state of things. In Manchester the local authorities, I am glad to be able to state, have taken the matter up and have put in force the orders issued by the Board of Agriculture and I hope that it may be the means of checking, if not entirely suppressing

that disease within the city boundaries, but, gentlemen, it is no use or of very little use one local authority taking up an order of the Board of Agriculture and carrying it out where alongside it are other local authorities who refuse to put in force those orders. The reason to you will be obvious. Now there is another subject, and this will be one of the subjects brought forward by the National Veterinary Association in a certain form, and that is the question of the proper and requisite inspection of meat and animals before slaughter, and of their flesh and viscera immediately after slaughter. Another subject to be then brought forward is that of various modes of slaughtering animals whose flesh is used for man's consumption as food. I was very much struck and grieved on reading a short time ago in our daily papers an announcement emanating from the City Council, asking that applications for the post of Assistant Inspector of Meat should be made, and that "Butchers or Veterinary Surgeons," that was the sequence, gentlemen, "Butchers or Veterinary Surgeons would be preferred." Moreover than that it will be necessary that the applicants should "assent to wearing uniform." Surely, gentlemen, in this age of progress, our City Corporation want waking up to the importance of the question of meat inspection, and they should not send forth advertisements stating that Butchers and Veterinary Surgeons who are prepared to wear a uniform would be preferred for such a lucrative post. Surely a duly qualified veterinary surgeon might be spared the indignity of a corporation uniform. I hold, and I hold tenaciously, and always have held that, in connection with all Boards of Health, all corporations having under their charge the health of a community, there should be in addition to the Medical Officer of Health a Veterinary Officer of Health. There would be no dearth of duties for them to perform if certain Acts of Parliament are carried out in the spirit of those Acts. Then, here is another subject which I think the Veterinary Officer of Health could well see to, and I believe that this duty has been carried on within the city boundaries. I allude to the inspection of dairies and milkshops. Well, if the inspection is to be carried out at all satisfactorily it ought to be done well; it ought to be done by someone who knows the diseases and natural habits of the domesticated animals from whom we obtain our daily milk supply. If we leave these subjects for a moment there is another subject which had I had time I should have been extremely glad to have dilated upon, and that is the large amount of optimism which prevails with regard to therapeutics. Any new drug, or combination of drugs, which may be introduced to our notice, I find there is a tendency to adopt them rather than the older ones which experience has justified. I point this out simply with the view of drawing your attention to the inadvisability of giving our opinion that certain drugs have certain effects before we have amply verified the same. On the other hand, I do not wish you to look upon me as a scoffer, or pessimist, far from it. The only reason I allude to it now is that new remedies are constantly cropping up; new remedies, like new umbrellas and new hats, are constantly being put before us by the vendors of these articles; men who have not had the same clinical training as we have had; men, who in their studies conceive that a certain combination of elements or compounds will be the means of adding to their income, straightway advertise these drugs, and do their best to induce those of us whom they can to try the same. I have no objection to trying these remedies so long as we are placed in possession of their composition, but I think it is extremely wrong for men in our profession to give testimonials stating the efficacy of compounds for internal administration, or external application, the composition of which they know next to nothing. I think it is a downward course to pursue, and one that ought to be looked upon askance by the members of the profession. As the hour has passed at which we ought to be at the festive board I must hurry on, and I desire partially to remind you gentlemen of this Association, that since we

last met, twelve months ago, this society has lost one of its ornaments and one of its most useful members—that member occupied the position of President of this society, and the position of Treasurer, and at the time of his decease, which took place a few short weeks ago, he was Vice-President. The gentleman I allude to was our late and deeply lamented friend, Mr. Thomas Briggs. As a friend, those who had the privilege of his acquaintance were alone able to value his friendship. As a member of this Association, the interest he took in it and the work he did for it will ever endear his name in our memories, and at the close of my few remarks, with your permission, gentlemen, I shall propose that a letter of condolence be forwarded to his sorrowing widow. Turning from the grave to subject of congratulation, it is my duty, I think—and in thinking, I believe, I shall be borne out by the members of this Association—to offer to our colleague, Mr. Samuel Locke, our heartiest congratulations on the magnificent fight, and the splendid victory he achieved when he contested the All Saints' Ward and became a member of the municipal body of this great city. In the history of our profession in Manchester, his name will ever be associated with the *first* veterinary surgeon who has sat at the Council Chamber of his native city. It is an honor of which I, as a Manchester veterinary surgeon, must feel extremely proud, and, moreover, I have the pleasure to know that the position he now occupies will not suffer at his hands, and I hope that he may be able to make such a mark in the Council's deliberations that when some other member of our profession may find himself called to go forward for municipal honors, that his duties may have been so well fulfilled that the public of Manchester will be able to support another veterinary surgeon when he comes forward for such honors." In conclusion, the President pressed the claims of the National Defence and Benevolent Association upon the members present, urging its adoption by those who were not already members, and finally concluded in thanking the members and friends for their kind attention to his somewhat discursive remarks.

After dinner, when the usual loyal toasts had been drunk, that of the "Navy, Army, and Auxiliary Forces," was proposed by Mr. MASON, and responded to by Veterinary-Captain MEREDITH and Dr. FAIRCLOUGH.

Mr. E. FAULKNER, in proposing the toast of the "Medical Profession," premised his remarks by saying that he had had no previous warning of the duty which now devolved upon him, and that he felt somewhat diffident in attempting the task, but very fully acknowledged the assistance which the sister profession had rendered to ours by the personal assistance of some of their distinguished members, and also by their profession's literature. He referred to the good fellowship which existed between the professions and particularly to the fact that the Pathological Society of Manchester had opened its doors to the veterinary surgeon, and that several of the members of this Association had joined. He pointed out that pathology, physiology, and anatomy, to be worthy of the name, must be comparative and include that of the lower animals as well as man. The two professions were essentially one, they overlapped each other in every aspect, and frequently the solution of questions devolved equally upon the surgeon and the veterinary surgeon. He had the greatest possible pleasure in proposing the toast of the "Medical Profession," and coupled with it the names of Dr. Bury and Dr. Kelynack.

Dr. BURY, President of the Manchester Pathological Society: Mr. President and Gentlemen, I am sorry that Dr. Delépine is not here to respond to this toast, but in his absence I can only do my best to express the great pleasure I have in being the representative for the toast of the "Medical Profession." In thanking you heartily and sincerely for the great honour you have conferred upon us to-night, I thank Mr. Faulkner especially for the very kind remarks that he has made with regard to the Medical Profession and to reciprocate almost all that he has said with regard to it. In fact, gentlemen,

one does not like to consider them as two distinct professions, it is really one profession. It is, as Mr. Faulkner has said, by a union of the two that we obtain the greatest benefit. I may also say it is very pleasant for us to be here to-night and to meet you, and we have also enjoyed very much meeting with those of you who are members of the Pathological Society, and one would like to see many more veterinary surgeons joining the Pathological Society and to bring us specimens, because I am sure it would be of great profit to us, perhaps more to us than yourselves, or at any rate the profit would be mutual; and, as a representative of the Pathological Society, to-night one would be very glad to receive the names of those who would be willing to join in the future, when their names would be communicated to our next meeting. As Mr. Faulkner has remarked, the study of comparative pathology is of very great interest and of very great profit to us, and it seems to us and it seems to me that only by studying the diseases of the lower animals can we really explain, or hope to explain, many of the rarer diseases with which man is afflicted. Through the kindness of my friend, Mr. Dacre, I have several times visited the Carriage Company's stables, and derived great interest by looking at many of the diseases horses are subject to, and what struck me most was how very similar the symptoms were to those in the human subject. In the case of the human surgeon he must wait the termination of the disease in death before making a *post-mortem* examination, whilst the veterinary surgeon can have his patient destroyed at any stage of the disease, and thus on *post-mortem* obtain valuable information as to the condition of the parts in the earlier stages. I have been very much struck with some specimens of equine and bovine tuberculosis, brought by one of your members before the Pathological Society, of the remarkable *post-mortem* differences which existed in this disease both as between the horse and ox and man. I could hardly have believed that the masses of new growth found in the spleen of horses could be tubercular, and the pearly growths unassociated with expectoration in the ox, are entirely different from what is seen in our own species. By bringing such specimens before our Society you will deeply interest us and add largely to our information on the subject. Dr. Fairclough has already alluded to the question of the Medical Officer of Health; I presume it came under the head of "Auxiliary Forces." I do not quite see the connection, but, gentlemen, it is a very important thing indeed that a Veterinary Medical Officer of Health should be associated with our own Medical Officer of Health. One does not wish to suggest any incompetency on the part of the Medical Officer of Health, particularly our own in Manchester, but it is perfectly obvious that a knowledge of the diseases of animals —and it is this knowledge which one wishes to be made use of—must be a great advantage in practical work, and I think a veterinary Medical Officer of Health to work in harmony with the Medical Officer of Health would be a great advantage to the community.

I will say nothing about the establishment of a Veterinary College in Manchester, but I should like to see some place where comparative pathology could be studied. I do think that it would be a great advantage to students of both professions to have the opportunity to study disease in animals in association with disease in man, and also to have a laboratory where the subject could be specially demonstrated. I can only again thank you most heartily for the kind reception you have given us and hope that in the future we may often meet in the Pathological Society.

Dr. KELYNACK: Mr. President and Gentlemen, I feel that my task is made rather difficult, as Dr. Bury seems to have gone over all the ground which I had in my mind to speak to you on. However, I quite agree with everything that he has said in thanking you most warmly for the reception you have given

us this evening. It has been said that parsons always see men at their best, lawyers at their worst, and doctors as they really are. As a medical man, I feel that, judging the veterinary surgeon by this rule, he is a very genial and amiable being. As Dr. Bury has said, the surgeon and veterinary surgeon are members of one profession—practitioners of one noble art of healing, and, as Mr. Faulkner has put it, this art is based upon the knowledge of identical principles, and that the problems of pathology as presented in the human subject and the lower animals are the same. Indeed, it seems to me that the most marked progress which of late years has been made in our knowledge of disease, has been arrived at by a study of the disease in animals, or by experiments upon animals. I need scarcely remind you, gentlemen, how medical literature abounds with these references, and I do think that it is most proper and necessary that the two branches of the healing art should meet together in this friendly manner for the advancement of our science. Constantly, almost daily, in the pursuit of my duties as pathologist, I feel the need and the value of examination of similar conditions in the lower animals. I am sure that the members of the veterinary profession if they would unite with us in the work of investigation into the complex problems which daily meet us, it would be a great help. My friend, Mr. Wolstenholme, your energetic and worthy secretary, has given me opportunities of examining various specimens connected with comparative pathology, several of which brought most interesting light on certain problems in connection with human pathology, *e.g.*, the question of tuberculosis. I have obtained much information from the specimens of equine and bovine tuberculosis which he has brought before the Manchester Pathological Society, and if we are to make any advancement in that most encouraging and promising branch of our art, viz., preventive medicine, which, I presume, attaches equally to animals as well as man, it must be done by the united aid of both professions. Dr. Bury has already indicated how pleased the members of the Pathological Society will be to meet the members of the veterinary profession in the pursuit of investigation of problems in pathology, and I would like to add that in connection with the department of pathology at Owen's College, to which I am attached, we have special facilities for the investigation in this subject, and we are at all times most pleased to receive morbid specimens from the members of your profession. I must again thank you, gentlemen, most warmly for this opportunity of meeting the members of such an honourable profession, and I hope and trust that in the future the two professions may more completely work together for the common weal.

Mr. J. B. WOLSTENHOLME: Mr. President and Gentlemen, I feel very much flattered, and I feel honoured in being requested to propose the toast of the Municipal Authorities; at the same time, I truly feel my power inadequate to the task. When one reflects on the enormous mass of detail which is involved in the management of a great city like Manchester—when one reflects on the devotedness of men who voluntarily give themselves up to the working out of this task, not only are we astonished at the magnitude of the work, but we are also astonished at the completeness with which it is accomplished. If we glance over some of the duties which are performed in this city for us, it will bring to our mind very forcibly what is attempted. In a large city the provision for the public health takes a prominent place in the endeavour of the municipal authorities. Then there is the supply of artificial light, the supply of water for domestic and manufacturing purposes, which is transported to us over long distances, even only accomplished by great expense and engineering skill. Then our authorities are invested with more or less control over all public entertainments—the theatre, the music-hall, and all large assemblies of its citizens. Licensed houses, again, are very strictly under their supervision and control. Then there is the making and maintenance of roads and bridges, the

censorship of all buildings erected, the removal of the refuse of the city, involving the care of a large number of horses, and the establishment of a large farming industry, whilst as a special item for the consideration of our municipal authorities, is the financing and large control over the construction of a canal which is intended to bring ocean-going vessels to our very doors. This epitome of some of the things undertaken by our municipal authorities will forcibly, I think, gentlemen, bring the task before you in its real proportions, and I am sure that we can only agree that in the main, and on broad lines, these duties are admirably fulfilled. They are done by citizens in the prime of life, giving their best, their ripest, and their most perfected energies to their (the duties) accomplishment. On an occasion such as this it is our privilege, it is our duty, to extend to them most generous praise for the disinterestedness, the self-denial, and public spirit which they bring to the service of the community. Having thus generalised on the position, we find the community split up into sections, and according to a man's vocation in life, so his natural peculiarities; and his opportunities for observation, so he sees some particular department of this great undertaking, and examines and criticises that section more carefully. The medical man naturally criticises the arrangements for the preservation of the public health, the architect buildings and similar structures. Now the veterinary surgeon, whilst taking deep interest in the public health of the community, has constantly and especially before his eyes the relationship which the diseases of animals bear to those of man. Speaking for myself, and I think I may for the profession in this city, it would appear that in the pressure of business and in the wide circle of municipal work, that a weak point in the armour may be discovered in this connection, or, in other words, that the provisions for the health of the community in the inspection of the flesh and milk of animals intended for food are not nearly so complete and thorough as their importance demands. Every veterinary surgeon is brought face to face with the fact, and repeatedly so, that the carcases and animals which have been killed whilst suffering from local and general tuberculosis, pleurisy, pneumonia, milk fever, septic mellitis, swine fever, larval tapeworms, and that *in extremis* from difficult parturition, general debility, and other diseases, are constantly being sent to the large towns for consumption by the poorer inhabitants. Indeed, in some country districts it is looked upon as a dereliction of duty on the part of the veterinary surgeon if he does not give timely warning that death is approaching his patient, in order that he may be replaced by the butcher, who promptly shortens the yet remaining span of life, dresses the carcase, and as carefully as possible removes those parts giving evidence of disease. For some time past the veterinary profession has tried to bring before the municipal authorities and the medical profession this weak point in our municipal armour, and once again the profession would like to point out that it is imperative for the proper protection of the inhabitants that a properly qualified veterinary surgeon should be associated with every medical officer of health, to whom should be relegated the duty of inspecting all animals intended for food, and their carcases after death, together with the premises in which they are slaughtered, as also the shippens in which milking animals are kept, together with dairies and milkshops, and to leave this duty any longer to a butcher, a policeman, or other person with no special qualification, is to leave the holes in the armour still uncovered and the weak place without protection. To-night I have especial pleasure in proposing this toast, as coupled with it is the name of Mr. Councillor Locke, who is the first member of our profession who has been honoured by election to the City Council. If I may judge by conversation with various members of that council, and from the speeches I have read, a very imperfect impression is in their minds as to the value of the services I have indicated, and we reasonably hope that Mr. Locke's presence there will, by degrees, bring forcibly upon their notice a

clearer and more correct appreciation. It is to be hoped that ere long such an official may be found attached to the department of public health in this city, and that in this respect we no longer remain behind the cities of Edinburgh, Newcastle, Liverpool, and Birmingham. I have great pleasure in asking you to drink to this toast.

Mr. Councillor LOCKE : Mr. President and Gentlemen, I rise with very mixed feelings to respond to the toast so ably proposed by Mr. Wolstenholme and in such an enthusiastic manner responded to by you all. I had hoped that His Worship the Mayor would have been here this evening to respond to the toast, but he was unfortunately called by his municipal duties to London. Dr. Tatham also intended to be present, but at the last moment he found he was unable to be present. On the other hand, I esteem it a very great honour, gentlemen, to be able to say that I, a junior member of this Association, have the honour to be the first veterinary surgeon that ever sat in the Manchester City Council. When I was asked by the electors of All Saints' Ward to contest that constituency, I did not know exactly what to do, but there has been a feeling on my part for a long time that the veterinary profession should be represented in the City Council. The prospects of our profession have wonderfully improved the last ten or fifteen years, and I think as a scientific body the municipal authorities ought to recognise us as being able to render our quota of service to the community. It was with feelings of pain and humiliation that I read the advertisement referred to by our worthy President, emanating from the Markets Committee seeking an inspector of meat with the words, "a Butcher or Veterinary Surgeon," and that he would be expected to wear a uniform. Some few years ago when the Health Department was being re-organised, there was a memorial sent from the Association to the corporation asking that this profession should be recognised and that in our opinion a veterinary surgeon ought to be associated with that department along with the Medical Officer of Health. Our suggestion, however, was not followed out, and I have always felt from that time that we ought to move in the matter. I feel to have public spirit enough to endeavour to try and make an alteration, and if I do so, I shall be amply satisfied for the time and anxiety I may devote to my municipal duties. I think it is quite right that a toast such as this should be given on occasions of this kind. You must remember that the members of the mnnicipal body devote a very large amount of time, giving a large amount of their energies to the good government of the city in which they live. Every credit ought to be given to them, because I do not think that outsiders know the amount of work that is done by those gentlemen gratuitously. I, as a new member, have to attend about twenty-four meetings a month, besides deputations, &c. Only the other day I formed one of a deputation which went over Chat Moss in the rain. I regard it as a very great honour indeed, and I do hope some other member of the profession may be sent to join me at the Council table. I shall do the very best I can to bring forward the claims of the profession. I do think that in time we shall find a veterinary surgeon in connection with the Markets Committee and Sanitary Department. I think that the value of a trained veterinary surgeon for this post had been overlooked by the members of our corporation, and on occasion in a quiet and humble manner I will endeavour to bring the claims of the profession before the members of the Council. There is also the question of the inspection of shippens and dairies. We know very well that there are many cattle, especially in large towns where cattle are kept up month by month that are affected with tuberculosis. and the milk from these cows is disseminated all over the city. This should not be. Inspectors who are not qualified know nothing about the diseases of the lower animals, and I think it is quite time a veterinary surgeon was in that position and that the abattoirs also be under veterinary supervision. I thank you, again, gentlemen, for the

very kind manner in which you have accepted the toast so ably proposed by Mr. Wolstenholme.

Dr. WILD, in proposing the toast of the Veterinary profession, said: Mr. President and Gentlemen, I feel deeply the honour that you have done me in asking me to propose this toast to-night. I feel it a great difficulty in doing adequate justice to the subject. Had I had previous notice I might possibly have been better prepared. So much has already been said this evening as to the relation between the veterinary profession and my own profession, that I feel that I must of necessity travel over the ground that they have covered. It has been mentioned that the veterinary branch has derived much information from the human branch. On the other hand, the human surgeon has derived very much from the study of disease in animals, especially in late years, seeing that much of our present knowledge of disease in man has been obtained by experiments on animals. The same is also true with respect to our knowledge of physiology, whilst as regards pathology you have a decided advantage over us. We often feel the difficulty in seeing clearly the process of disease. We cannot kill a patient at any particular stage. But with you it is possible to take away the life of an animal and so definitely ascertain the pathological changes accompanying a disease at its various stages, and the value of this study in comparative pathology has been well exemplified in the specimens which some of your members have brought before the Pathological Society. Especially has medical knowledge been advanced by investigations upon animals in the diseases of anthrax, tetanus, hydrophobia, glanders, tuberculosis, &c. To my mind your profession has also another distinct advantage over ours in the matter of granting diplomas. In our profession there are some nineteen diploma-granting bodies, and the standard of medical and surgical knowledge is thus unequal and irregular in testing and granting to the individual the legal qualification to practice. You have, I am pleased to know, but one portal, and by this means alone is it possible to protect the interests of the public and safeguard the status of the profession at the same time. Reference has been made to the need for a veterinary surgeon connected with the department of Public Health in a large city. I can only add that I thoroughly endorse this opinion and hope the time is not far distant when a veterinary surgeon as a public officer of health and severed from private practice shall be associated with the Medical Officer of Health in that all-important department, of which the latter is at the head. In this connection I am very pleased to note the return of one of your members to the City Council quite recently. In conclusion, gentlemen, I thank you very much for coupling my name with the toast and hope that the human and veterinary branches of medicine may steadily progress together in the elucidation of disease.

Professor WILLIAMS, in responding to the toast, referred to his long connection with the profession, and said that he had observed very many changes which had taken place in it. With respect to the position of the veterinary surgeon he might say that, whilst it was possible at the commencement of his career to have found some men who were earning as much as the best of the present day, yet the body of the profession generally is very much better than it was then. To have collected a company here forty-five years ago, such as we have this evening, would have been an impossibility. Gentlemen, the course of practice has also changed very materially, and I think, on the whole, we have made very great progress. Speaking of comparative pathology and the duties of veterinary surgeons and medical men with regard to public health, I was struck with the observations as to the difference between tuberculosis in the horse and the human being. Of course tuberculosis in the cow is different from that in man. In the case of man the disease is ulcerative, accompanied with great expectoration. In the cow it is a growth of tubercles.

I think the term is much more appropriate to the disease as we see it in the cow than in the human being. In the horse we find great masses of new tissue, which has previously been referred to, and no expectoration. I think the matter is to be explained by the study of the anatomy and histology of the normal tissues of the lower animals. Take a specific disease for example, the growth of specific organisms differs very materially according to the soil in which they have been sown. So also in the vegetable kingdom; if you take a field of barley when it is green, for instance, and if you examine it, you will find that some portions appear quite different from the others, and inexperienced people would say that the plants at one portion of the field were of a different species from those at other portions, but it is only barley after all; which the casual observer has no difficulty of assuring himself when the grain is in the ear and ripe. Again the bacillus anthracis, as seen from the blood of an animal which has died from the disease, is very different from the same bacillus as developed in the various methods of culture outside the living animal. Therefore I maintain that unless a man studies the anatomy, physiology and histology of the lower animals in conjunction with that of man, it is impossible to perfectly understand and explain the differences which occur in like diseases in different animals. I trust that the subject of comparative pathology may be more extensively taught in the country, and I think it is obvious that those who fill such chairs should be in the first place veterinary surgeons, and in the second place medical men. In connection with what the veterinary profession has done for modern medical and surgical science, it always jars upon me that whilst reference is constantly made to a number of well-known observers, yet credit is rarely given to that man, and a veterinary surgeon, who by his observations laid the foundation for the germ theory of disease and the introduction of antiseptic surgery. I refer to Delafond, who demonstrated the constant presence of the rodlets we now know as those of the bacillus anthraces in the blood of animals affected with splenic fever. I think it my duty when I am in a company like the present, to bring his name in memory. The superstructure of definite knowledge which we now possess on these diseases, has been built up by Pasteur, Lister, Koch, and others, and I think that the veterinary profession is at least entitled to some credit for having done some little towards the advancement of science. I am highly delighted at the success of my friend Mr. Locke in becoming a member of your City Council, and I trust that he in the middle of England, and myself a fellow Councillor in North Britain, may be able to do something towards the elevation and advancement of our profession. Gentlemen, I thank you very much.

Mr. Woods thanked the members for coupling his name with the toast, and said that he hoped that Professor Williams would again be returned to the Council table of the profession, that he felt sure that his long and great experience as a teacher and a Councilman would be invaluable at the present time, seeing the great changes which were being introduced in the education of the veterinary surgeon.

Mr. Greaves, in responding to the toast, also referred to the long period he had been in the profession, and brought before the company the claims of the National Benevolent and Defence Association.

Mr. Dacre, in appropriate language, proposed the health of the President, to which Mr. W. A. Taylor replied.

Mr. H. Ferguson proposed the health of the visitors, which was responded to by Dr. Wood and Dr. Jackson.

Mr. Henry Thompson, of Aspatria, proposed the toast of the ladies, and Mr. H. D. Chorlton responded.

Jno. B. Wolstenholme, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held in the London Hotel, 4, St. Andrew Square, Edinburgh, on February 15th. The retiring President, Mr. James Clarke, Coupar Angus, occupied the chair. There were present Principal Williams, Professor W. O. Williams, Professor Hunter, Messrs. Rutherford, Burnett, Thomson, Aberdeen; A. Pottie, Paisley; Connochie, Ayton; Borthwick, Kirkliston; McArthur, Perth; Young, Dundee; Hutton, Kelso; Bannatyne, Haddington; Bradley, Edinburgh; Moir, Edinburgh; Young, Editor *North British Agriculturist*; Storie, East Linton; and several visitors.

The CHAIRMAN said the first business was the installation of Professor Owen Williams as President. I am quite sure you will all agree with me in saying we have made a very excellent and happy choice. Professor Owen Williams has proved himself a very energetic and excellent member of this Association, and from his well-known abilities as a teacher and veterinary surgeon, I am quite sure he will fill the chair with great acceptance to the Association. I am very glad to see that since my installation two years ago, the Association has increased in numbers very materially, numbering now about fifty. Well, this I ascribe more particularly to two causes—first to the enthusiasm and energy of our very excellent Secretary, and secondly, partly to the fact that a departure was taken after my election as President two years ago in changing the place of meeting, or at all events in having one meeting during the year in the North. That has been a great success. We had a very excellent attendance, in fact, I think, a better attendance than here generally, and I hope the Association will agree to continue this course. The Association is evidently to be benefitted by it. Well, gentlemen, before vacating the chair, I have to thank you very much for the cordiality and kind support you have given me during these two years, and I hope you will accord the same to Professor Williams. There is one thing very necessary for the progress of an Association such as this—not only enthusiasm by the office bearers, but enthusiasm shown by the members, and I sincerely hope that in the future, as it has been in the past, the Secretary and President won't call meetings here without getting very hearty support from the members.

Professor W. OWEN WILLIAMS then took the chair. He said: Before the conclusion of this part of the business I wish to nominate Mr. O. C. Bradley as a member of this Association, and Mr. Moir seconded the motion which was adopted.

The late Mr. A. Robinson.

Mr. RUTHERFORD, Edinburgh, said there is a duty which devolves upon us, and I think it very properly falls upon me, to notice the very sad death of a much respected member of our Association since we last met. I allude to Mr. Archibald Robinson, one who has been a member of this Society for many years, not only of this but of other societies in Scotland and elsewhere, and one who by his good qualities and great talents taught us the benefit of professional brotherhood. I have to ask you to request our secretary to write and state to his widow and his grieving father and mother how much we deplore his loss to ourselves and to the profession of which he was such a brilliant ornament.

The CHAIRMAN: It was with deep regret that I heard of the death of our great friend, Mr. Archibald Robinson, one of the rising men of the profession, and, in fact, if he had been granted life and good health he would have been among the leaders of the profession in his day. I second the motion of Mr. Rutherford, that we should send a vote of condolence to show our deep sympathy to his father and other relatives.

Principal WILLIAMS said as an old teacher of our departed friend, I have also to express my sorrow at his premature decease. He certainly was one of my most brilliant students, and, as already stated, if he had lived would have been a great honour to his profession. He was a most accomplished man, well acquainted with the Continental languages and with Continental literature, and had he lived would have been a great benefit to the profession. His old father and myself have been friends for many years, and I cannot tell you how deeply we sympathise with him at the very premature, but not unexpected death of our friend.

The motion was agreed to.

The SECRETARY next read letters of apology from Messrs. Cowie, Balhousie; Hutchinson, Dundee; and others.

The SECRETARY said in compliance with the request made at last meeting of this Association regarding a petition being presented to the Highland and Agricultural Society, I wrote to the secretary on December 4th of last year, in the following terms:—

December 4th, 1892.

To F. N. MENZIES, ESQ., Secretary,

Highland and Agricultural Society of Scotland.

SIR,

According to a resolution of the Scottish Metropolitan Veterinary Medical Association, at a meeting held in Edinburgh on November 23rd last, I now take the liberty of laying before your directors the following resolution which was passed at that meeting:—

"That owing to the diversity of opinion as to the nature of the disease found in a Canadian bullock, slaughtered at Lindores, County Fife, in October last, and which has led to the scheduling of Canadian cattle, the Highland and Agricultural Society be requested in the interests of agriculture to institute further investigation into the matter, it being understood that Principal Williams still has in his possession a portion of the disputed diseased lung, and that he is quite willing to submit the same to any well-known pathologists."

I may state that Professor Nocard, Veterinary College, Alfort, near Paris, Professor Greenfield, Edinburgh University, and Professor Hamilton, Aberdeen University, might be collectively or individually consulted on this matter, and I understand Principal Williams is quite agreeable to this arrangement.

(Signed) PETER MOIR.

Mr. MENZIES replied:—

3, George IV. Bridge, Edinburgh,
7th December, 1892.

MY DEAR SIR,

Your letter of 4th with resolution of the Scottish Metropolitan Veterinary Medical Association as to the disease amongst cattle from Canada, laid before my directors to-day, and after deliberation they resolved not to interfere in the matter.

Yours faithfully,
F. N. MENZIES, Secretary.

PETER MOIR, ESQ.,
9, Kilmaurs Terrace, Edinburgh.

The SECRETARY continued: I wrote to these eminent pathologists, asking if they would be so good as to make a microscopical examination of a section of the Lindores lungs as follows:—

Edinburgh, 10*th December*, 1892.

The Scottish Metropolitan Veterinary Medical Society.

DEAR SIR,

The above Society, at their meeting held on November 23rd ultimo, desired me to present a petition (copy of which is subjoined), to the Highland and Agricultural Society of Scotland, requesting them to forward specimens of lung disease found in a Canadian bullock slaughtered at Lindores, Fifeshire, in October last, for your opinion, there being a dispute between the veterinary advisers of the Government, and Professor Williams of this city.

That Society, after due deliberation, has decided not to interfere in the matter, and I now take the opportunity of appealing to you direct, and will feel much obliged, by your letting me know if you will kindly consent to make a microscopic examination of a portion of the lung now in Professor Williams' possession, and give your opinion thereon.—I am, yours truly,

PETER MOIR, Hon. Sec.

My first reply was from Professor Nocard:

MON CHER CONFRERE,

C'est toujours une chose délicate que d'intervenir dans une discussion entre deux confrères; à moins d'y être invité par les deux parties, l'opinion que l'on émet n'a qu'un résultat; irriter la partie que l'on condamne, sans pour cela close le débat.

Mon vieux maître si regretté, Henri Bouley, m'a souvent donné ce conseil de refuser toute consultation relative à une question litigieuse, à moins que cette consultation soit demandée par l'autorité compétente ou par les *deux* parties en désaccord.

C'est la conduite que j'ai toujours tenue, autant que je l'ai pu, et il ne me semble pas que je doive aujourdhui m'en départir.

Veuillez agréer, mon cher Confrere, l'assurance de mes sentiments les plus distingués.

ED. V. NOCARD.

When translated this reads as follows:—

MY DEAR CONFRERE,

It is always a delicate matter to interfere in a discussion between two confreres; unless one is invited by both parties, the opinion which one gives has but one result, namely, to irritate the party condemned, without at the same time closing the dispute. My old master, so much regretted (H. Bouley), often gave me this advice—to refuse every consultation relating to a disputed question unless this consultation is asked by a competent authority, or by both parties to the dispute.

This is the line of conduct I have always taken, as far as I have been able, and it seems to me that I ought not to depart from it on the present occasion.

Professors HAMILTON, Aberdeen University, and GREENFIELD, Edinburgh University, most kindly acquiesced to my request.

Professor HAMILTON made a very careful examination, of which the following is a report:—

University of Aberdeen,
February 4th, 1893.

DEAR SIR,—I have now had the piece of lung you sent me, said to be from an American ox, examined, and beg to report as follows:

The piece of lung in question was preserved in spirit and was about an inch long by half-an-inch wide, and thick. It was in a fit state for microscopic examination, and I divided it into two parts. One of these was embedded in celloid previous to being cut into microscopic sections, the other was cut into sections without being embedded. The lung substance felt less spongy than usual but did not feel as if it was hepatized.

On staining and mounting the sections and examining them with a magnifying power of fifty diameters, the most striking feature noticed was the large quantity of cellular material lying in the air-vesicles. Nearly every air vesicle contained a mass of cells with highly-stained nuclei. The infiltration was general; it did not appear to be distributed in patches. On higher amplification the cells just mentioned as being contained within the air-vesicles were seen to be of large size. Compared with a coloured blood-corpuscle they were as a rule three or four times as large. They were evidently of epithelial origin, as they could be seen desquamating from the neighbouring alveolar walls. They corresponded exactly with what are usually termed "catarrhal cells."

The cells in question lay embedded in granular matter (mucus). In no instance could I detect a fibrinous network within the air-vesicles and around them.

On comparing them with the cells within the air-vesicles in several cases of genuine infectious pleuro-pneumonia of cattle they presented an entirely different appearance. They were much larger, possessed more distinctly defined nuclei, and varied much more in general contour.

There was not any well-defined bronchus in the piece of tissue sent me, bnt a small bronchiole which I found seemed to be in a like catarrhal condition.

The interlobular septa were more prominent than they usually are. They could be readily seen with the naked eye, owing to the thickening of their substance. The thickening was caused by the presence within them of a dense network of fibrin, with a few small round cells in its meshes. The appearance of these septa were identical with what is found in infectious pleuro-pneumonia.

The blood vessels seemed to be fairly filled with blood, but not so distended as they usually are in pleuro-pneumonia.

The piece of lung did not possess any pleura attached to it.

Summary. The appearances of the air-vesicles taken alone would be quite in keeping with the theory of broncho or catarrhal pneumonia, with this exception, that the catarrhal appearances were more diffuse than is usual in that disease. It is quite unusual, however, to find the interlobular septa infiltrated with fibrin in catarrhal pneumonia. In this respect the sections of the lung would bear out the theory of the disease being of the pleuro-pneumonic type. It is also to be borne in mind that in the commencement of a croupous pneumonia of any type—infectious or not—the epithelium is often found desquamating. I must confess, however, that I have seldom found it proliferating or desquamating to the extent presented by this lung in any croupous pneumonia I have examined.

In the absence of the naked-eye appearances of the affected organ it is very difficult for me to express a definite opinion upon the disease. The piece of lung sent to me is certainly anomalous in many respects.—Yours very truly,

D. J. HAMILTON.

PETER MOIR, ESQ.

I have seen Professor Greenfield to-day and he expressed his willingness to continue his examination. He says:—

Report on a piece of lung from a cow (Fife case) supposed to have suffered from pleuro-pneumonia contagiosa.

The piece of lung submitted to me for examination measured only about three-quarters of an inch in length, and half-an-inch in breadth and thickness. It had apparently been hardened in spirit; and I have no information of its appearance when fresh, or of the condition of the rest of the lungs.

I have examined it carefully by various methods, with the following result:—

I. The notable changes are almost entirely limited to the interlobular septa. They consist in great thickening, due in part to fibrinous exudation, partly to leucocyte infiltration, and to great distension of the lymphatics. Here and there are seen parts which are composed of a denser laminated connective tissue, with swollen fibres; but this change is not prominent. Other minuter inflammatory changes need not be described.

In the air-cells in immediate contiguity with the septa, are masses of recent fibrinous exudation, well seen by Weigert's method of fibrin staining.

II. In the rest of the lung tissue the changes are comparatively slight. Some of the minuter bronchi show slight catarrhal change, but still more some peri-bronchial leucocyte infiltration, such as is seen in all capillary bronchitis. But this change was very slight, and was accompanied only by slight fibrinous exudation in the immediately adjacent alveoli, and almost no catarrhal change. From a comparison of these changes with those I have myself observed in pleuro-pneumonia of cattle and with those recorded by competent and recognised authorities, I have no hesitation in saying that they appear to me to be identical, and that I know of no other disease which will produce them. At the same time, I do not feel justified in pronouncing a positive opinion, since I have not the full facts, and there *may* be some disease which produces like changes.

W. S. GREENFIELD, M.D.

Feb. 13th, 1893.

Principal WILLIAMS:—I have also a report which I will read. In addition to those of the gentlemen mentioned, I sent two pieces of the lung to Canada—one from the Lindores case, and the other from a case of pleuro-pneumonia which I had in my possession.

Professor SMITH, Principal of the University of Toronto, says:—

January 5th, 1893.

MY DEAR SIR,

I enclose copy of Dr. John Caven's report on the specimens of Canadian lung, and also of contagious pleuro that you kindly sent me.

Dr. Caven made a most careful examination. The specimen of Canadian lung shows unmistakable signs of broncho-pneumonia.

I again most emphatically assert that contagious pleuro does not now exist, nor never has existed in any of the cattle of Canada.—I am, my dear Sir, yours truly,

ANDREW SMITH.

Prof. W. WILLIAMS, F.R.C.V.S.,
New Veterinary College, Edinburgh, Scotland.

[COPY.]

University of Toronto,
Pathological Laboratory, *January 4th*, 1893.

A. SMITH, Esq., F.R.C.V.S.

DEAR SIR,

I have examined microscopically the specimens of lung tissue which you sent and have to report as follows:—

The specimen labelled pleuro-pneumonia shows a distinct *croupous* inflammation, the alveoli being largely filled with a fibrinous exudate. The vascular engorgement is throughout the greater part of the specimen a very marked feature, and there is almost no proliferation or desquamation of epithelium to be seen. The specimen labelled broncho-pneumonia, on the other hand, presents the characteristic features of a *catarrhal* inflammation, the bronchi and alveoli containing numerous epithelial elements with a few leucocytes.

There is no fibrinous exudate or at most a few isolated alveoli showing it, as is common in catarrhal pneumonia.

Judging from the microscopic appearances, I would conclude that the two specimens were taken from animals suffering from pneumonia which had resulted from very different causes, the one corresponding to what in human practice is called lobar or croupous pneumonia, and which is recognised as an acute specific form; whereas the other corresponds to the catarrhal or broncho-pneumonia of human pathologists, and may result from a variety of causes.—Yours very truly,

JOHN CAVEN,
Professor of Pathology, University of Toronto,
and in the Ontario Veterinary College.

Professor A. SMITH,
Ontario Veterinary College, Toronto.

Principal WILLIAMS continued: "Croupous" or specific pneumonia is now understood amongst all medical men to be of a contagious nature, and the condition of the lung which you find in the pleuro-pneumonia of cattle is almost identical with what you find in this specific pneumonia of man. I may state that these reports are so far very satisfactory, and I am sorry that Professor Hamilton is ambiguous. He gives you a description of broncho-pneumonia and he gives you a drawing of it. However, the graphic description will stand for ever, no matter what the disease may be. There it is and I maintain, notwithstanding what Professor Greenfield may say, that broncho-pneumonia is a disease of a non-contagious character. They forget that in horned cattle the interlobular septa are very much thicker than in the human being, or even in horses. The interlobular tissue is more marked and distinct than in other animals. Well, again, Professor Greenfield—I have seen him this morning and had a talk with him, and certainly he has made up his mind that this is pleuro-pneumonia. I showed him what I thought to be the cells, the large catarrhal cells drawn by Professor Hamilton, who seems to rather be inclined to change his mind. I could not convince Professor Greenfield that the smaller contents of the alveoli were not fibrin. Professor Nocard—and some of the gentlemen who assisted me will confirm what I say—at once agreed with me that this is broncho-pneumonia. And he is the only man we can look to. He is a man who investigated the disease for the French Government. They did not shilly-shally. They did not allow them to burn their boats as the people of this country have done. Now, if this be pleuro-pneumonia we must exclude American cattle; if it be not pleuro-pneumonia the trade must be opened. Is this a free trade country where arbitrary measures can be carried out at the dictum of one man? In France they went in for the whole subject. Inoculation was tried, and Nocard came to the conclusion that it was a non-contagious disease, and he agreed with me. Whereas here you see they bring forward that it is a contagious disease. There is a glorious piece of evidence given to yesterday's deputation by Mr. Gardner, that one healthy Scotch animal had been in contact with a condemned, diseased Canadian bullock and had become affected. Nobody saw the lungs of the animal. At least I did not. But granted it had pleuro-pneumonia—it was only a single one. They say some are still alive and there has not been another case. Then I ask you this question: Was the time intervening between the discovery of the disease, or even the landing of the Canadian cattle and the outbreak of pleuro in this particular animal sufficiently long? Did any veterinary surgeon know pleuro break out in two or three days after contact? I say distinctly, no! It takes a far longer period. If it had been pleuro we should have had a great deal more of it about Scotland. Although some of the cattle are about to-day we only hear about this particular animal, a case

which I doubt very much. If this was pleuro why did not they show the lung? I have my opinion and I show the lung. Here is a fact which they have all omitted to mention. There is a plugging up of the blood-vessels in pleuro-pneumonia which you never have in this broncho-pneumonia. And even with the naked eye if you compare the open vessels in the one disease with the plugged-up vessels in the other I say no man will make a mistake. I don't think Professor Greenfield will alter his opinion. At the same time I am perfectly willing to let Professor Nocard or any pathologist in the world determine between us. I maintain my opinion as strongly as ever, and I think the evidence that has been brought forward since our last meeting is much stronger in my favour than then. I think it a great shame indeed that a source of profit to our poor farmers during this period of distress should be cut off at the arbitrary dictation of a gentleman certainly who has not allowed investigation into the matter.

Mr. RUTHERFORD said he was sure the society was very much indebted to the secretary for the trouble he had taken in entering into correspondence with the various gentlemen as he had. He could not say himself that they were advanced any further since last meeting in the direction of having made the question more satisfactorily clear. On the contrary, to his mind they were deeper in doubt and mystification as between experts as to what this disease really was. He was intensely disappointed with those gentlemen who differed so materially between themselves. Now, as ordinary members of the profession, they themselves were not trained—he said it advisedly—to be capable of passing absolutely reliable opinions upon microscopical appearances and tissues, but having a certain amount of training in what was termed the "naked eye" appearances of disease they were drawn back again to the desire to be allowed an opportunity, in the event of the disease again appearing, to see for themselves the "naked eye" appearances of these lungs—not portions of the lungs, but of the whole of them, and not of one lung, but of both lungs from each infected animal. He himself had not once, but 50, aye 100 times, seen in cases of pleuro portions of lesions not much larger than a walnut, and the whole of the rest of the lungs absolutely healthy. If this disease was pleuro—and he must confess that the history of those outbreaks was directly opposed to the history of pleuro as he had always been accustomed to meet it—it was quite unusual to find the disease breaking out after a short voyage like that to which these animals were subjected, and no trace left behind as to the origin of it in Canada. If these animals had contagious pleuro the home of the disease must be Canada, provided it was nowhere else. Now Canadians had very cleverly explained away that. They said that admitting there was no disease in Canada it was quite possible infected cattle might have crossed the Canadian boundary into Canada, and hence the presence of this pleuro amongst their importations. That might or might not be, but there was one certain way of proving its presence should it ever be brought again. It would surely be a very easy matter for those who had recognised this disease now to recognise it again, and he thought the County was entitled to ask that the animals should not be immediately slaughtered and their lungs dispersed until a larger number of experienced veterinary surgeons had seen the animals in life, and a similar number seen them in death, so as to make a careful examination of the lungs as taken from the body. Two great tests in doubtful cases were first the inoculation of some of the virus from the lungs of the slaughtered animals into the cellular tissues, and again an opportunity of promoting contact between living diseased and living healthy animals.

Mr. CONNOCHIE (Selkirk), said it seemed very remarkable that the ordinary practitioner seemed to be ignored altogether. In his 35 years' experience he had had comparatively little difficulty in diagnosing cases of pleuro, and in recognising the appearances by the naked eye.

Mr. CLARK said the very fact alone of 1,200 or 1,300 cattle having been brought from Canada to this country, and only four doubtful cases—Mr. Gardner said "undoubted" cases, but they were doubted by a very great authority, Prof. Williams—was an argument against its being pleuro. He thought the Government had a right to take the public into their confidence, and, at all events, give ample opportunity of further investigation. That they had not been ready to do. His impression was that the Government must give way and grant a re-introduction to Canadian cattle. Speaking personally, he had examined about a twelfth part of the 1,200 called in question, and a healthier lot of lungs he never saw in his life. His impression was that Prof. Williams had a very strong argument at his back, through the fact that only four cases were supposed to exist. In the event of any further trouble, he thought a committee should be appointed and a full investigation take place, not by the microscope but by experts, veterinary surgeons who were well-known to have a thorough knowledge of the disease. The Government had not done what they were entitled to do, and the clinical aspect of the question should have been thrashed out.

Mr. MOIR said he fully coincided with the remarks regarding the treatment this country had received in the opportunities afforded to veterinary surgeons, to test for themselves the precise nature of this disease. The microscopic reports brought forward to-day, afforded a striking example of the adage that "doctors differ," and he maintained that the weight of evidence was very strongly against the opinion of those doctors being correct. The Canadian Government had made inquiries throughout the Dominion as to the existence of this disease, and they reported there was no such disease in the country; while they had received to-day the opinion of Professor Smith, of Toronto, the pioneer of veterinary science in Canada, who for the past 30 years has taught and practised veterinary science in the Dominion, and who emphatically asserts that contagious pleuro-pneumonia does not now exist, or ever has existed in Canada. He is supported by Dr. Cavens, in respect to the portion of the Lindores lung supplied by Prof. Williams, and microscopically examined by him, being that of broncho and not pleuro-pneumonia. He maintained than an interest such as this—some 98,000 Canadian cattle being imported into Scotland last year—that an enormous traffic like this should, at the dictation of one or two men, be completely stopped, was monstrous. He quite agreed with Mr. Rutherford that inoculation should be put in force if Canadian cattle were to be admitted again, if disease of a doubtful character appeared among them.

Mr. YOUNG, Dundee, said the underhand manner in which the Government had gone about this affair was remarkable. Mr. Clark had to thank his official position for seeing these 100 cattle. He (Mr. Young) took a little interest in the thing. He went to the scene of the outbreak, and an inspector met him and turned him off the place. He was only a young man in the profession, and surely such a powerful man as Prof. Brown might have let him see them. It seemed to him that so long as the Government did not freely allow not only veterinary surgeons but the general public to see into it, so long would doubt exist in the public mind.

Principal WILLIAMS: Just a word of explanation. Let me correct one mistake you are all making. The similarity between these diseases is so great that it is only the microscope that will determine it. Even in France, Nocard himself, until he had made investigation, was unable to state that there was any difference between it and pleuro. There is one great difference. In pleuro the blood vessels are plugged; in this disease the blood vessels are not plugged. You will have coagulation of the blood previous to death. In this disease no coagulation takes place, and that is the most distinct separation between the two appearances, to the naked eye at least. You must have a

microscope, and you see that even with the microscope people differ. One man says it is lymph and the other coagulated cells. So far as experiments in inoculation have gone, Nocard has proved that the disease is not contagious. If we see what he has done let us act upon it, or agree to what he has done. I simply say it is broncho-pneumonia. I have had no experience of its contagiousness. I am not in a position to say it is not contagious. It is a great pity it has been called cornstalk disease. We have it here in cattle after parturition; what is called septic (?) pneumonia. It is not, of course, so frequent here, but you can understand in a climate like Canada, where the winters are so terribly cold, with these animals put on board ship and confined, you can understand how they will suffer so much more from broncho-pneumonia.

Mr. BURNETT, Maybole, said he was told this morning by a gentleman coming from Glasgow, that his brother had bought some of the cattle. He was written to about them, but never replied. Some of these cattle were still alive and healthy. A neighbour of his had some of these cattle also, and they had been examined every fortnight.

Professor WILLIAMS: Off the same ship?

Mr. BURNET: Yes.

Principal WILLIAMS: That is a most important piece of evidence.

Mr. RUTHERFORD: I thought they were all killed?

Mr. BURNET: Some are still alive yet. When I made my motion at last meeting that this should be referred to the Highland and Agricultural Society, I intended also that the society should take this matter up and investigate it further than by the microscope, or by other means find out who is wrong. Of course, it cannot be done in the past, but for the future they ought to make some investigation.

Mr. THOMSON, Aberdeen, a Government inspector, said the subject had been so well ventilated, so well spoken to from one aspect of the question, that anything he could say of a depreciatory character might be looked upon as coming from a partisan of the Government. He was not there to exonerate the Government as to whether the disease was contagious or sporadic, but he had a great deal to do with pleuro in a large country in which it was very prevalent. He had not been so fortunate as his friend, Mr. Connochie, who had been capable on all occasions of discovering pleuro in the living state, and always certain in the dead state. He must say he had very often had great difficulty, as well as much anxiety, to find out whether there was any special way whereby he could arrive at a decision in this problem. He must say he had been in many cases puzzled with the appearances, and he was glad to find Prof. Williams coincided with him in saying it was very difficult indeed to discriminate. He had been accustomed to Canadian cattle for many years, and would say that it would have been more a happy hit than otherwise if one could have discriminated between pleuro-contagiosa and pleuro-simplex without microscopical examination. He was sorry there had been imported into this discussion so much embitterment, because he held it was altogether a scientific subject, and if the Government had made a mistake they had done it from no bad intention, but from want of being capable of differentiating between the one thing and the other. The feeling of the meeting seemed to be so adverse and so critical in regard to the Government's action in this matter, that further discussion would still more embitter a question which had better be left alone.

Principal WILLIAMS: Have we been treated as scientific men by Professor Brown and the others?

Mr. THOMSON: You have forced them to fight. They have never come forward in a public way and said: "We have been wrong." You have pressed your claims into that bitter sort of condition which I think is altogether unworthy of any Association to countenance.

Principal WILLIAMS: Nonsense.

The CHAIRMAN in closing the discussion pointed out that they had received the opinions of extremely eminent men. Professor Nocard and another gentleman in Canada, a recognised veterinary surgeon, said the disease was not contagious pleuro. Dr. Hamilton, who had a smattering of knowledge of veterinary science, "swithered." Dr. Greenfield, who had no knowledge of veterinary science, gave it his opinion that it was pleuro. It was stated by Mr. Rutherford that it was quite possible for pleuro-contagiosa to affect one portion of the lung and the rest of the lung to be healthy. Even if that were so, they certainly had not cut off the top of the lung and sent it on to experts. There was another thing. The virus of pleuro was not the only virus that caused the typical swelling in the tissues of cattle. There were other germs which caused similar swelling, more particularly the *bacillus ademnitis*, of the disease commonly called Blain, supposed by many to be due to the sting of the bee or the bite of the viper. Another thing which he might remark was in connection with taking purely medical opinion about diseases of the lower animals. There was a very great difference between tuberculosis in cattle and tuberculosis in man. Men not veterinary surgeons were probably not aware of the fact, or did not trouble to learn the fact, that there were two or three forms of pleuro in cattle—that which was contagious, that which was due to cold, and that which was due to injuries.

The CHAIRMAN said they had their next meeting in about four months, and that it would be in some other town than Edinburgh.

Mr. CLARK proposed that they should again visit Perth, because several members had joined from the simple fact that the Association came north to meet them halfway. On some future occasion they might with advantage go to Melrose, Kelso, Selkirk, or Hawick. There was this advantage in connection with Perthshire. They had vets. as thick as flies in a treacle pot. Within a radius of 15 miles they had 35 professional men living by veterinary science alone.

A voice: There are plenty who don't live. They exist only.

Mr. HUTTON seconded the motion, which was adopted.

The CHAIRMAN then delivered his inaugural address as follows:

Gentlemen,—I beg to thank you most sincerely for the great honour you have done me in electing me your President for the ensuing year. It is a special honour you have done me when one reads the roll of my illustrious predecessors. I do not feel worthy of being added to that roll, but you may depend upon it that whatever lies in my power to keep and add to the high reputation of this society, it shall be done. Fortunately for me, the days of the long inaugural addresses are dying out, and on this special occasion, as we have done so much important work, you will quite understand why my address is so brief. I wish, however, to touch upon a few topics of considerable importance to our profession.

Firstly, what is known as a New Educational Scheme has virtually commenced with the year. It is good theoretically, but I am much afraid it will cause considerable hardship to stock-owners in districts removed from large towns. The reason I think so is, that from a commercial point of view no man who has paid a large sum of money and spent several years in obtaining his diploma, can possibly afford to travel a long distanee to see a sick animal for a very small fee; as it always must be remembered that owners of animals carefully consider, as nearly as they can, the probable cost of veterinary treatment, and consequently in many cases prefer to doctor the animal themselves or else to slaughter, as without a doubt the initial cost in their minds will be less then the ultimate expense. This refers more particularly to cattle, sheep, and pigs. As we all know, it is seldom that a veterinary surgeon is called upon to treat an odd sheep or pig, the owner being fully aware that it

would cost more, even in these days, for professional attendance than the animal would ever be worth. It seems to me that in these days of great agricultural depression Government might assist the agriculturists. It a very hard case indeed that a small stock-owner should see his stock slowly dwindling away from some or other disease and yet be not able to afford to pay for professional advice. Why should not Government assist those people who are struggling to earn an honest livelihood by appointing a district veterinary surgeon, who on intimation, we may say, from the police, should go and attend the diseased animal? It is a curious fact that people may obtain medical advice and treatment for themselves—may also obtain legal advice—may educate their children—may be kept and fed, and all of these for nothing. Why should they not be able, if in need, to obtain veterinary advice? but at the present rate of expensive education their chances are becoming more and more remote. It thus seems to me to be quite certain that, unless Government aid be given to assist in the treatment of the lower animals, in many of these outside districts such advice and attendance will be given by empirics, and the days will gradually return when the farrier was the veterinary surgeon and the barber the doctor. One thing which always surprises me is, that we don't have a code of veterinary ethics. This code should be broad in its lines. It might contain certain rules for the guidance of young practitioners, also regulations, all to be recognised by the Royal College of Veterinary Surgeons, and infringement of which rules might be punishable: such as the following might meet with approval:—

I. In consultations the consultant should express his opinion and advice only to the veterinary surgeon who called him in, and should do all in his power to smooth the way out of a difficulty if there be one.

II. There should be a recognized minimum fee charged by the veterinary surgeon.

It does not seem very professional for veterinary surgeons to compete between themselves for work. If need be let them compete by proving their fitness to be entrusted and not to compete as regards prices.

III. Another thing which might be considered unprofessional, should be canvassing. This is a most objectionable practice, and harms the profession very much in the eyes of the public.

IV. Lastly, I think that no veterinary surgeon should be permitted to advertise in the press. It does look bad to see Mr. —— ——— is a specialist on castration; or a wonder with dogs; or that Mr. —— ———'s colic draughts cure all diseases.

Before concluding the business of the meeting, the secretary read a circular letter received from the secretary of the National Veterinary Association, referring to the Institute of Preventive Medicine. The letter was allowed to lie on the table for future discussion.

At the close of the meeting, the members of the society and their friends dined together, under the presidency of Prof. W. O. Williams, and a very pleasant evening was spent. PETER MOIR, *Hon. Sec.*

ONTARIO VETERINARY COLLEGE.

AT the December examinations of this successful institution, the following gentlemen, after passing a searching examination, received the diploma of the Agricultural and Arts Association, thus becoming fully qualified to practice:—Charles W. Baker, London, Ont.; Abraham L. Baum, Shelly, Penn., U.S.; Robert S. Beattie, Markham, Ont.; Eugene D. Block, Buffalo, N.Y., U.S.; Elvin L. Button, Durand, Mich., U.S.; William S. Cooke, Stouffville, Ont.; James F. Cox, Muscatine, Iowa, U.S.; Henry T. Creagan, Decatur, Mich., U.S.; Thomas E. Early, Aylmer, Ont.; William H. Gaddes, Indian Head,

N.W.T.; David Glendinning, Belfountain, Ont.; Charles Wesley Gosnell, Ridgetown, Ont.; William E. McCandless, Capac, Mich., U.S.; James H. McLean, Poplar Hill, Ont.; Clyde L. Sawyer, Kankakee, Ill., U.S.; John W. Smelser, Davenport, Ont.; John B. Stevens, Yale, Mich., U.S.; Thomas Stewart, Bo'ness, Scotland; Charles E. Wright, Grenfell, Assa.

The primary examinations resulted as follows:—Anatomy—V. Lathrop, W. J. Morgan, F. L. Phelps. Materia medica—W. R. Hunter, J. M. Klinck, W. J. Morgan.

On the morning following the conclusion of the examinations, the students and friends assembled in the college. Principal Smith took the chair, and Professor Sweetapple read the lists of successful students. Among those on the platform were to be seen prominent veterinarians, both Canadian and American, most of these being graduates of the Ontario College. Encouraging words were spoken to the graduates by Professor Smith, principal of the college, and these remarks were warmly received by the students, graduates, and friends present.

ONTARIO VETERINARY MEDICAL ASSOCIATION.

THIS society, which is the largest in Canada, and which has for its object the advancing of the interests of the profession in the province of Ontario, met in the college at the call of the president. This was the annual meeting, and was well attended. The retiring president, —. McArthur, V.S., gave an excellent address, and several matters of interest to the members were brought forward. The discussions which followed showed that the members were keenly alive to the best interests of the profession, and determined to advance it by every legitimate means. After discussion of the papers, the election of officers was proceeded with, and Mr. J. Wende, V.S., of Buffalo, N.Y., was unanimously chosen president. The concluding business of the meeting was the appointment of Principal A. Smith, Dr. J. T. Duncan, and J. Wende, V.S., as delegates from this Association to the International Veterinary Congress to be held in connection with the World's Fair at Chicago in September next.

ROYAL AGRICULTURAL SOCIETY.

AT the Monthly Council Meeting on March 1st, Sir JOHN THOROLD announced that the Examiners in Cattle Pathology for the Diploma of the Royal College of Veterinary Surgeons in 1892 had reported that the following gentlemen, placed in order of merit, had become entitled to the medals given by the Society:—(1) F. L. Clunes, Newcastle-under-Lyme; (2) F. T. G. Hobday, Bedford House, Burton-on-Trent. The Committee recommended, therefore, that the Society's large medal be given in silver to Mr. Clunes, and in bronze to Mr. Hobday.

Professor Brown had presented the following report:—

Pleuro-Pneumonia.—During the first seven weeks of the present year no case of this disease has been found among home-bred cattle, and therefore during that period no contact cattle had to be slaughtered, Nine suspected cattle, however, were killed and found on *post-mortem* free from pleuro-pneumonia. In the corresponding periods of 1890, 1891, and 1892 the diseased cattle killed were 262, 111, and 31 respectively; the contact cattle killed were 652, 1,289 and 450 respectively; while the suspected cattle killed in the same years were nil, 30, and 37 respectively.

Foot-and-Mouth Disease.—A fresh outbreak of this disease has occurred since the last meeting of the Committee at Pound Farm, Guestling, near Hastings. The disease first manifested itself among four store cattle in a shed, and from them it spread to the other cattle, about twenty, in other parts of the farm buildings, no doubt through the same attendant feeding all these

cattle. There are over 250 sheep on the farm, and up to the present they have not become affected, being at some distance from the homestead where the cattle are. Strict isolation has prevented the spread of the infection from the farmyard. The origin of the disease has not yet been made out.

Swine Fever.—This disease is again increasing, there having been 282 fresh outbreaks and 1,438 swine attacked, as compared with 207 outbreaks and 1,410 swine attacked last year.

Anthrax.—This disease shows a very marked increase in the present year, as compared with the corresponding period of last year, there having been 62 outbreaks and 142 animals attacked this year, and only 36 outbreaks and 62 animals attacked last year.

Notes and News.

JEYES' DISINFECTANTS.—We learn that the Committee of the Manchester Dog Show have entrusted Jeyes' Sanitary Compounds Company with the disinfection of their Show, held this year, a fact which will be appreciated by all lovers of dogs and dog exhibitors.

A HEAVY CALF.—At the meeting of the Paris Central Veterinary Society on January 12th, a letter was read from a correspondent, giving the description of a calf which, at birth, weighed 82½ kilogrammes or about 182 pounds. It was in a bad position in the uterus, but when adjusted it was readily removed by traction, notwithstanding its enormous dimensions. It and the cow did well.

ABATTOIR ASEPSIS.—Professor Nocard, of the Alfort Veterinary School and member of the Paris Medical Academy, who was instructed by the Health Council of the Seine Department to investigate whether the butchers at the Villette slaughter-house sterilised their instruments, states in his report that it is impossible to carry out sterilisation or thorough antiseptic measures there. Neither does it seem to him necessary to do so; not only would it be necessary to sterilise all the knives, saws, choppers, etc., but also boards, scales, troughs, pails, baskets, carts, linen for wrapping the meat, in fact all the thousand and one articles used. M. Nocard adds that extreme care and cleanliness are practised at the Villette slaughter-house.

A GLANDERS PROSECUTION.—Mr. Herbert Scarlett, veterinary surgeon, of Stoke Newington, London, was recently summoned at the instance of the London County Council, for having in his possession, at his stables, in Stamford Terrace, Stoke Newington, a horse suffering from glanders, and not giving notice of the same to the police. Mr. Collman prosecuted for the council, and Mr. C. V. Young defended. Mr. Collman said that the horse died on February 9th, and defendant's partner telegraphed to Messrs. Harrison and Barker, horse slaughterers, to remove the carcase. The man who was sent at once saw that the animal had died of glanders, and he refused to touch it. Mr. Bros said that the case was not so bad as others he had heard, in which glandered animals had been sent along the streets. It was most important, however, that immediate notice should be given in such cases to the police. He fined the defendant 40s. and costs.

PRECAUTIONS IN BLOWING MEAT.—M. Nocard recommends that when meat is blown up at the Villette, Paris, slaughterhouse a cotton-wool plug should be placed in the orifice of the bellows, to prevent the germs contained in the atmosphere passing into the meat. This inflation of the connective tissue is practised in France to render the separation of the muscles from the animal's skin more easy; in a great many slaughterhouses it is no longer continued. Dr. Viger, the Minister of Agriculture, has visited the Villette slaughterhouse to ascertain that all measures for preventing contagion are carried out. In future, a special apparatus will be used for preparing animals

dead from contagious diseases. No pens or stables are to be used until they have been disinfected and have been untenanted during forty-eight hours. It will be remembered that this inflation of the connective tissue is commonly practised by butchers in this country when dressing the carcases of calves; but they do not employ bellows, unfortunately, but apply their mouth and force their own foul breath into the subcutaneous connective tissue. This filthy procedure should be stopped, and the French method, as recommended above, adopted.

PERSISTENCE OF A CROSS WITH AN INFERIOR BREED.—In the Austro-Hungarian Agricultural Colleges, wool, as has been stated, is made a special branch of study. The nature and habits of the sheep require more study; little or no attention is given to the action of external causes on the unshorn fleece. It has been said that the fineness of the pile of wool is proportioned to the fineness of the skin pores. Fleischman states, in reference to the persistent endurance of a single cross, that the original coarse German sheep have 5,500 fibres on a single inch; grades of the third or fourth merino cross produced about 8,000; the twentieth cross, 25,000; whilst the pure merino had 40,000 to 48,000; so that twenty crosses were not sufficient to make the race pure merinoes. Wool is finer at the bottom of a full-grown staple than at the top: in short, there are any number of interesting lines of scientific inquiry. Hairy African sheep, with yolk all baked out, might improve by removal to more favourable influences. Here is a statement constantly cited, which cannot be explained physiologically, and from a scientific point of view it is scarcely creditable that the thing is not finally settled: If a lamb is suckled by a goat, the wool becomes hairy; a kid suckled by a ewe, the hair becomes woolly?—*Royal Agricultural Society's Journal.*

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from T. J. Turner, Missouri, U.S.A.; H. G. Rogers, London; Messrs. Arnold and Sons, London; Dr. Billings, Lincoln, Nebraska, U.S.A.; A. W. Hill, London; P. Moir, Edinburgh; Dr. J. T. Duncan, Ontario, Canada; W. A. Hancock, Newcastle-on-Tyne; J. B. W. Wolstenholme, Manchester; Jeyes' Sanitary Compounds Company; T. B. Goodall, Christchurch; Veterinary-Captain J. Mills, Bombay; Professor Bradley, Edinburgh.

BOOKS AND PAMPHLETS: Bulletin et Mémoires de la Société Centrale de Méd. Vétérinaire; *Dr. Josef Bayer*, Bildische Dorstellung des Gesunden und Kranken Auges unserer Hausthiere; *Dr. D. E. Salmon*, Report upon investigations relating to the Treatment of Lumpy Jaw or Actinomycosis in Cattle; Bulletin de la Société Royale Protectrice des Animaux de Belgique; Bulletin of the Johns Hopkins Hospital; *G. Pennetier*, Histoire Naturelle Agricole du Gros et Petit Bétail; Bulletin des Seances de la Société Nationale d'Agriculture de France; Bulletin et Mémoires de la Société Centrale de Méd. Vétérinaire; Procès-Verbal de l'Académy Royale de Méd. de Belgique.

JOURNALS, ETC.: *Cape of Good Hope Agricultural Journal; Scottish Farmer; Modern Medicine and Bacteriological World; Baily's Magazine; Bell's Weekly Messenger; Medical Press and Circular; Journal of the Royal United Service Institution; Lancet; Clinica Veterinaria; Revue Veterinaire; Live Stock Journal; Repertorium der Tierheilkunde; Recueil de Med. Veterinaire; American Veterinary Review; Journal de Méd. Vétérinaire; Thierarzt; Annales de Méd. Vétérinaire; Presse Veterinaire; Echo Vétérinaire; Archiv für Wissenschaftliche und Praktische Thierheilkunde; Journal of the Society of Arts; Edinburgh Medical Journal; Mark Lane Express; British Medical Journal.*

NEWSPAPERS: *Madras Times (3 copies); Baltimore Sun; Nebraska State Journal; Hindu; Baltimore American; Leader; Yorkshire Post; Kentish Mercury.*